Audit Judgment and Self-Regulation

The Implications of Regulatory Focus Theory and Regulatory Fit in Audit

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Abstract

This thesis introduces two concomitant psychological perspectives, Regulatory Focus Theory and Regulatory Fit Theory to research in the field of audit judgment and decision making (JDM). The purpose of this thesis is to explore the applicability of the two theories in audit JDM research and to generate preliminary empirical results concerning their plausible implications.

Regulatory Focus Theory (Higgins, 1997) provides a fundamental model of human cognition, emotion, and behaviour, as composed of two distinct self-regulation systems: promotion focus (concerned with nurturance needs) versus prevention focus (concerned with security needs). The developing theory has provided many remarkable insights into cognition and decision-making generally. It is proposed in this thesis that Regulatory Focus Theory has important implications for audit JDM, and that it may enrich the account of difference in audit judgment and cognition among auditors provided by prior research. Employing an audit task setting that involved judgment concerning investigation boundaries, this thesis reports evidence for the distinct effects of promotion focus versus prevention focus on cognition of temporal aspects of accounting information and on information processing styles in audit judgment. Participants represent a mix of accounting undergraduates, MBA students, and accounting practitioners. Compared with promotion-focused individuals, prevention-focused individuals over-discount the significance of accounting information distant in the past (five-years ago), while under-discount proximal (two-years ago) information. When information is processed procedurally rather than intuitively, differences in judgments among subjects with promotion versus prevention focus is significantly reduced.

Higgins' later work looks at how strategic means serve one's regulatory focus dispositions and finds that certain strategic means or behaviours may better sustains or fit one's motivational state than others (Cesario, Higgins, and Scholer, 2008). The concept of regulatory fit has been applied by researchers in the field of consumer behaviour to study the effect of regulatory fit on the persuasiveness of advocacy messages (e.g., Avent and Higgins, 2006). This thesis proposes that the persuasion effect of regulatory fit can be applied to audit JDM and in particular to the persuasion aspects of the audit review process, and provides new evidence in support of the proposal. The persuasion effect of regulatory fit is examined in a scenario constructed to be analogous to audit. Accounting undergraduates assume a role as independent party to advice the committee of a student drama club on planning of activities for the current year based on review of accounting information in relation to revenue generation of the club. Experimental results reported in this thesis show the relevance of regulatory fit / misfit in audit judgment. Across three settings of regulatory fit induction: The experiments manipulated various sources of regulatory fit – fit from framings of messages received; fit from strategic means applied within the task; and finally fit from prior performance in a separate task. The thesis has demonstrated methods by which regulatory fit can be created from various sources in audit contexts and offered findings suggesting factors affecting audit judgment not yet covered in extant research, e.g., order of audit tasks and the strategic manner of audit tasks (eager versus vigilant).

Table of contents

List of Tables

List of Figures

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Declaration of Originality

I hereby declare that this thesis is my own work and to the best of my knowledge it contains no materials previously published or written by another person, or substantial proportions of materials has been submitted for any other degree at the University of Glasgow or any other educational institution. Information derived from the published and unpublished work of others has been explicitly acknowledged in the thesis and a list of references is given in the bibliography.

Signature:

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Definitions and glossary of terms

1. Carry-over effect (of regulatory fit) – the effect of prior manipulation (regulatory fit induced in earlier section in the experiment) continues to affect later judgment(s).

2. Eager strategic / eagerness means and vigilant strategic / vigilance means

Eager (strategic) means – means applied in the process of goal pursuit activities, taking the signal detection test as example, to take every opportunity to ensure possible 'hits' (correct responses made), and to ensure against errors of omission (e.g., missing of opportunity due to inaction) at the possible cost of making incorrect responses / inclusions. See glossary of 'hits and misses' (below) for more details about the signal detection test in Crowe and Higgins (1997).

Vigilant (strategic) strategy – means applied in the process of goal pursuit activities (e.g., in a signal detection test) to take necessary cautions to ensure making correct rejections, and to ensure against error of commission (e.g., false alarm due to wrong actions taken) at the cost of missing chances of making correct responses.

3. Hits and misses – these two terms are first introduced to the literature of regulatory focus by Crowe and Higgins (1997). In a signal detection test, participants are given a list of series of letter with different combinations to read first. They are then given a new list after removal of the old list and to judge whether each of the series of letters in the new list appears in the old list. Correct responses made ('Yes' response to correct items and 'No' response to incorrect items) are considered as *hits*, and incorrect responses made are considered as *misses*.

4. Incidental fit – regulatory fit induced from incidental source, e.g., sustaining means applied in a prior separate / independent task. Refer to Section 1.4.3.2 on (page 22).

5. Integral fit – regulatory fit induced from sustaining means applied integrally / within the task. Refer to Section 1.4.3.2 (page 22).

6. Intuitive and procedural information processing styles – In the setting of *intuitive style of information processing* in this thesis, relevant information to the required judgment is made available to individuals to allow direct reflection on information processed;

whereas in the *procedural style of information processing*, individuals are to make computations to obtain necessary information in making judgment.

7. Message matching – regulatory fit induced by matching framing of messages, e.g., match promotion / 'positive' / 'hits' framing of messages with promotion focus orientation, and match prevention / 'negative' / 'misses' framing of messages with prevention focus orientations. Refer to Section 1.4.3.1 in Chapter One (page 19).

8. Persuasion fit – the persuasiveness effect of regulatory fit that enhances the persuasiveness of information / messages processed. See Section 1.4.2 (page 18).

9. Promotion focus and prevention focus

Prevention focus – the self-regulation system that is concerned with presence and absence of negative outcomes, with protection, safety and responsibility (Higgins, 2002). Individuals with prevention focus prefer applying vigilant strategy in goal pursuit activities.

Promotion focus – the self-regulation system that is concerned with presence and absence of positive outcomes, with advancement, aspirations and accomplishments (Higgins, 2002). Individuals with promotion focus prefer applying eager strategy in goal pursuit activities.

Please refer to Chapter One (Section 1.3) for more detailed explanations (pp. 5-14).

10. Rebound effect on judgment – It was observed in the experiments in this doctoral research project that participants occasionally make sequential judgment in a reversal manner compared to earlier judgment(s) (see summary in Table 11.1 in Chapter Eleven). In a series of estimation judgments, some participants, compared with the rest of participants in the experiment, indicated lower values in their responses, but made significantly higher estimations in later task.

Chapter 1: Introduction

1.1 Overview

The objective of this doctoral project is the exploration of the significance of the theory of regulatory focus and regulatory fit for audit practice. The thesis provides preliminary empirical results, based on experiments, of the implications of regulatory focus theory and regulatory fit in the field of audit judgment and decision-making (JDM) research. The ideas of regulatory focus and regulatory fit has been widely applied in behavioural and cognitive studies in social psychology, but researchers have not yet recognized their potential implications in the context of accounting and auditing. Following the experimental tradition of audit JDM research, an attempt is made in this thesis to simulate audit settings with sufficient attention to relevant necessary detail to give a degree of validity, whilst abstracting away from factors that introduce what seems, at this stage of investigation of the constructs, to be unnecessary complexity which unchecked could confuse subjects and confound the results.

Regulatory Focus Theory (RFT) (Higgins 1997; 1998) offers a fundamental model of human cognition, behaviour, and emotion, that distinguishes between two distinct self-regulation systems:

- *Promotion focus* – concerned with nurturance needs, e.g., achievement, growth and advancement, and;
- *Prevention focus* – concerned with security needs, e.g., safety and responsibilities.

Consider the two goalkeepers of the competing soccer teams in a match who share the same goal to support their own team to win the match. The goalkeeper of team A, being promotion focused, wants to catch every balls that target at the goalmouth, who sees every ball successfully caught as effort made toward accomplishment of his goal; whereas the goalkeeper of team B, being prevention focused, wants to prevent any balls from moving over the defended goal-line, who sees every defended attack as necessity to ensure the secure of the goalmouth.

The theory suggests that individuals with an orientation to promotion focus will tend to

prefer to pursue their goal by applying "eager" strategy[1], and that individuals with orientations to prevention focus will tend to prefer "vigilant" strategy in their approach to their goals. Later developments found that that regulatory fit/misfit[2] between individuals' regulatory focus and the strategic means employed affect the outcome of their goal pursuit (Shah, Higgins and Friedman, 1998) and the subjective experience of regulatory fit/misfit can be transferred to outcome value in the decision (Higgins, 2000; 2002; 2006; Higgins, Idson, Freitas, Speigel, and Molden, 2003; Camacho and Higgins, 2003). More recent applications of Regulatory Focus Theory and Regulatory Fit in persuasion science established a link between the persuasiveness of messages and the recipient's 'feeling of rightness', even spilling over into feelings of moral rightness, derived from regulatory fit (Cesario and Higgins, 2008; Lee and Higgins, 2009).

This thesis proposes that the distinct effect of promotion focus and prevention focus can be applied to better explain difference in judgments among auditors and offer new knowledge to the cognitive limitations research in audit JDM, e.g., heuristics and bias. Audit review can be understood as a series of persuasion interactions between the preparer of audit working-paper and the reviewer, which means there is also a persuasion aspect in audit judgment. Thus, it is also proposed in this thesis that the established persuasiveness effect of regulatory fit in consumer choices studies shall be applicable to the persuasiveness of accounting information / audit evidence auditors considered in making judgments.

This chapter provides a brief introduction of this thesis. The rest of this chapter is structured as follows: In Section 1.2, the background of this research is described and the motivation for the study is explained. This chapter then introduces the two concomitant theories: Regulatory Focus Theory (Section 1.3) and Regulatory Fit Theory (Section 1.4) and generally reviews prior research that applied the theories in the decision-making studies, with a few plausible implications of the theories discussed at the end of each section. The potential contributions of this research are outlined in Section 1.5. This chapter ends with an outline of chapters in the thesis in Section 1.6.

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[1] Take soccer game as example. Following an eager strategy, the coach may allocate more force in attack at the cost of weaken the defense; whereas following a vigilant strategy, the coach may allocate more members to defense at the cost of shortage of attack force.

[2] When preferred strategic means were applied in goal pursuit, individuals' regulatory foci are sustained – regulatory fit, e.g., promotion focused people applying eager means; whereas individuals experience regulatory misfit when applying strategic means that disrupted with their regulatory foci.

1.2 Background and motivation of the study

It has been 15 years since Arthur Andersen, and audit as an institution, was engulfed by the scandal of Enron. Yet, governments and regulatory bodies are still looking for ways to improve audit quality in order to restore public confidence in audit service.

Soon after the collapse of Enron, the US government passed the Sarbanes-Oxley Act of 2002 (SOX) to improve the audit process. The SOX Act sets up a regulatory board with stiff criminal penalties such as lengthy jail terms for accounting fraud. It also creates independent inspection process of audit firms by the Public Company Accounting Oversight Board (PCAOB). In the U.K., the Audit Quality Review Team[3] was set up by FRC to audit the quality of audit work by the big accounting firms. Professional bodies continue to be anxious about audit deficiencies regarding the nature and the content of the audit. For instance, the Financial Accounting Standards Board (FASB) (2004) has expressed its concern about the reluctance of auditors 'to exercise professional judgment in areas involving accounting estimate, uncertainties, and inherent subjectivity'. PCAOB's discussion in 2005 also raises questions regarding practical problems in audit judgment like differences in uncertainties inherent in individual accounting items in financial statements. In the U.K., the Financial Reporting Council (FRC) has issued discussion paper to initiate dialogue with practitioners looking for ways to promote audit quality (FRC's discussion paper, 2006). Scholars have drawn attention to the deficiencies of audit: Church et al. 2008, for instance, argues that auditor's report 'conveys little communicative value' and merely 'has symbolic value'. An audit report contains little indication of the logical arguments that auditors made based on a series of statements supported by large bulks of evidence gathered from audit. The reputation of the audit profession is valued more than the strength of the argument expressed (Smieliauskas et al. 2008). Despite efforts from different parties to promote audit quality, the bankruptcy of Lehman Brothers in 2008 once again led the public to question the credibility of auditors thought responsible for failing to alert the world to the dangerous approach adopted by the financial firm.

Psychologists have argued that reforms which treat the problem as one of ethics and morality and conscious bias, miss the real problem: Bazerman, Loewenstein, and Moore

[3] The Audit Quality Review Team, formerly named as the Audit Inspection Unit (AIU), is part of the Professional Oversight Board and is responsible for monitoring the quality of audits of listed and other major public interest entities and the policies and procedures supporting audit quality at the major audit firms in the UK. It was set up in 2003 following the UK government's review of the regulation of the accountancy profession post-Enron.

(2002) has pointed out that it was often 'unconscious bias' that led to auditor's misjudgement, whereas the Sarbanes-Oxley Act, unfortunately, focuses primarily on fighting 'conscious corruption'. This article discussed a few common judgmental errors and bias to support its argument. For instance, it is obvious that auditors are self-interested as they have strong business reasons to remain in clients' good graces and they are thus highly motivated to approve their clients' accounts'. Therefore, a possible solution to improve audit quality might be to provide training to auditor to inhibit common bias in judgment.

Social psychologists have extensively studied the heuristics and biases in judgment and decision-making. Tversky and Kahneman (1974) identified a number of heuristics and demonstrated that they can lead to severe errors in judgment. A significant stream of behavioural research in audit adapted work like Tversky and Kahneman's and documented the existence of systematic biases in audit situations (Joyce and Biddle 1981a; 1981b; Kinney and Uecker, 1982; Biggs and Wild, 1985; Smith and Kida, 1991). However, not everyone will fall into the same trap of judgment. While some people show a clear pattern of certain bias, others do not and the magnitude of such impact also differs among people. Thus, better knowledge of psychological process of decision-making is in demand.

Prior research has applied regulatory focus theory to heuristics and bias in decision-making science and reported evidence of fundamental regulatory focus effects in judgment bias. For instance, prevention focused individuals are more susceptible, than promotion focused people, to the effects of loss aversion in their decision-making and more prone to sunk cost error (Halamish et al., 2008; Molden and Hui, 2011). The differential effects of regulatory focus offer alternative explanation of differences in judgement and decision-making and help in the exploration of the factors behind judgment (Higgins and Spiegel, 2004). In addition, individuals are motivated by their regulatory focus, either promotion or prevention focus, to use particular strategies in their goal pursuit activities. The effect of regulatory focus dispositions on strategic preferences in information processing has an important impact on the decision reached (Higgins and Molden, 2003; Molden, 2012). It is therefore hypothesised that Regulatory Focus Theory will cast new light on issues in audit judgment and advance existing knowledge in audit JDM literature.

1.3 Regulatory Focus Theory

Building upon the hedonic principle that individuals are motivated to approach pleasure and avoid pain, Regulatory Focus Theory introduces two distinct self-regulation systems, promotion focus and prevention focus, which research has shown have significant effects on decision-making. Empirical findings suggest that difference in regulatory foci can be applied to explain differences among people in cognitions, behaviours, and emotions. This section explains the theory (Subsection 1.3.1) and its implications for judgment and decision-making studies (Subsection 1.3.2) with a discussion of existing literature (Subsection 1.3.3).

1.3.1 The theory and the effects of regulatory focus dispositions

The hedonic principle claims that people are motivated to approach pleasure and avoid pain. This has been applied as a fundamental explanatory factor in the study of human cognition, motivation and behaviour. Previous efforts to develop upon and utilize the principle include Higgin's Self-Discrepancy Theory (1987), which classified two types of end-states – ideal self-guides and ought self-guides. Ideal end-state refers to what an individual ideally wants to become, which usually represents one's hopes, wishes and aspirations; ought end-state refers to what individuals consider 'should or ought to be', which represents individuals' belief about their duties, obligations and responsibilities. Individuals tend to aim to move the current actual-self state as close as possible to the desired end and as far away as possible from the undesired end.

As a further development of the Self-Discrepancy Theory, Higgins (1997) proposed a new theory suggesting that people engage in distinct self-regulation processes in their efforts to bring themselves into alignment with relevant standards and goals, the ideal and ought self-guides. This, so called, Regulatory Focus Theory identifies two distinct motivational systems: promotion focus (ideal motivated) and prevention focus (ought motivated). A promotion focus is therefore concerned with advancement, growth and accomplishment, and it motivates people to bring themselves into alignment with their ideal self-guides; whereas a prevention focus is concerned with security, safety and responsibility, and it motivates people to bring themselves into conformance with their ought self-guides.

Regulatory focus has been applied in research as an indicator of individuals' stable attributes or as a transient state stimulated by manipulations. Differences in regulatory

focus orientations can be found at the individual level – as difference in either chronic or transient disposition. Chronic difference can be identified using the Regulatory Focus Questionnaire (RFQ)[4] (Higgins et al., 2001). The RFQ distinguishes between individual's subjective history of success in promotion-related goal pursuits ('promotion pride) and subjective history of success in prevention-related goal pursuits ('prevention pride'). Measured in an eleven-item questionnaire, individuals who score higher in the measures of 'promotion pride' are chronically promotion-focused; whereas individuals who score higher in the measures of 'prevention pride' are chronically prevention-focused. The differences in regulatory focus can also be temporally induced at a situational level, as a short-term disposition that varies in different situations. This is often accomplished by framing an identical set of task payoffs for success or failure. For completion of the task, in order to activate a promotion focus, the payoff is framed in gain vs. non-gain that extra rewards are redeemable; whereas to activate a prevention focus, the payoff is framed in non-loss vs. loss that rewards are free from penalty.

It has been established from prior research that the distinct effect of promotion focus versus prevention focus can be applied to explain differences in emotions, cognitions and behaviours.

An important aspect of regulatory focus theory is its recognition of the fundamental function of goal commitment. The theory distinguishes between commitment-based on a basic need for accomplishment or growth (promotion focus) and commitment-based on a basic need for security (prevention focus). Promotion focus is often associated with maximal goals, long-term targets and ideals states that reflect the most that one could wish for; whereas prevention focus is often associated with minimal goals, oughts and necessities that require immediate actions (Shah and Higgins, 1997; Shah, Friedman, and Kruglanski, 2002; Higgins and Spiegel, 2004). Hence, individuals with a promotion focus may pursue multiple goals, and be ready to set higher target with higher difficulty when circumstances allow, they tend to feel less committed to particular targets than individuals with a prevention focus who tend to be more highly committed to fulfil one single goal. Additionally, prevention focus indicates a strong inhibition of alternative goals. Thus, people with a promotion focus are more likely to switch to new goal pursuit activity or target (Liberman, Idson, Camacho and Higgins 1999). They are reported to be more willingly to give up a current goal pursuit activity for a new activity; and more willingly to

[4] Regulatory Focus Questionnaire (RFQ) is attached in Appendix 1.

sacrifice a prize currently possessed for a new prize.

Regulatory focus has also been found to have a strong influence on people's emphasis on quantity of versus quality of accomplishment. Forster, Higgins and Bianco (2003) demonstrate this effect through a study testing individual's emphasis on speed vs. accuracy[5]. Emphasis on speed versus accuracy has generally been used as substitution of quantity versus quality concerns in psychology studies. In a simple dot-connecting task, promotion focused participants were found to be more concerned with speed, i.e., to finish the task quickly, and prevention focused participants were found to be concerned with accuracy, i.e., to avoid making mistakes.

Success and failure in goal pursuit, i.e., the attainment or non-attainment of ideal-related and ought-related goals, has been shown to have different emotional consequences (Higgins, Shah, and Friedman, 1997). Individuals who are motivated by promotion focus produce cheerfulness-related emotion (e.g., happiness) when attaining ideal goals, whereas dejection-related emotions (such as disappointment) are produced when failing to attain ideals. In contrast, individuals with a prevention focus produce quiescence-related emotions (e.g., relaxation) when attaining ought-related goal, whereas failing oughts will lead to agitation-related emotions (e.g., nervousness). Regulatory focus has also been found to have influences on the nature and magnitude of people's emotional experience (Brockner and Higgins, 2001).

Research on Regulatory Focus Theory has provided many important insights into the motivational nature of decision-making. The next section (Section 1.3.2) discusses the implications of the theory for decision-making science.

1.3.2 Implications of the theory for judgment under uncertainty

Prior studies on Regulatory Focus Theory have documented distinct effects of promotion focus versus prevention focus on individual's cognitive process when making judgment (Higgins and Spiegel, 2004). It has been claimed that promotion focus orientated

[5] Forster et al. (2003) also found an intensified effect of regulatory focus under the 'goal looms larger' effect. When participants got closer to goal completion (about to finish the task), promotion focused participants' emphasise more on speed, and prevention focused participants' emphasise more on accuracy in their task performance.

individuals tend to make more risky responses in decision-making; they are more sensitive to the presence and absence of positive outcome; and they show the eagerness to pursue all means of advancement, etc. Prevention focus oriented individuals are evidenced to be conservative in decision-making; more sensitive to the presence and absence of negative outcome; and vigilant or careful to avoid mistakes, etc.

The prior literature has also examined the relationship between regulatory focus and particular issues pertaining to judgment, including heuristics and bias, such as loss aversion and sunk cost error, as well as it relation to profound decision-making theories including prospect theory and expectancy theory.

1.3.2.1 Heuristics and bias

Effects of regulatory focus disposition on people's sensitivity to outcome have cast new light on a number of classic assumptions in human judgment and decision-making theory. Loss aversion, for instance, refers to an asymmetry between subjective impacts of losses versus gains, with losses looming larger than corresponding gains (Kahneman and Tversky, 1984; 1992; Halamish et al., 2008). The implication, and predictive value, of this asymmetry has been limited because the level of loss aversion behaviour differs among people. Empirical findings suggested that loss aversion is more characteristic of a prevention focus than of a promotion focus (Idson et al., 2000; Liberman et al., 2005).

A common mistake in decision-making, relating to sensitivity to loss incurred, is sunk cost error – 'the tendency to continue an endeavour once an investment in money, effort, or time has been made' (Arkes and Blumer, 1985). Giving up on the sunk cost invested would entail a certain loss being materialized. Consistent with loss aversion behaviour, individuals with prevention focus would be less likely to give up what has been sunk in an unsuccessful investment to avoid sunk cost being materialized as loss made (Higgins, 2002). Individuals with promotion focus tend to take every opportunity to seek advancement. They are less likely to make further investment into an unsuccessful project as sunk cost is considered as necessary exit cost so as to take new opportunity. Molden and Hui (2011) reported supporting evidence that promotion focus, as compared with prevention focus, reduced sunk cost error in experimental setting using hypothetical financial decisions concerning poorly performing financial investments (sunk cost in investment).

Roese, Hur and Pennington (1999) tested the effect of regulatory focus on individual's counterfactual thinking in response to a failure. Counterfactual thinking is thinking about of how things might have turned out differently if no action or different action had been taken. Promotion focus was found to be associated with counterfactual thinking of how things might have turned out differently if individuals had not missed an opportunity for advancement; whereas prevention focus was found to be associated with counterfactual thinking of how things might have turned out different if individuals had avoided a mistake. People with promotion focus are motivated to adopt eagerness means to correct a past error of inaction – error resulting from inaction, e.g., missing an opportunity; people with prevention focus are motivated to adopt vigilance means to correct a past error of action – error resulting from wrong action taken or mistakes made. Therefore, past failure may have different influence on future decisions by individuals with different regulatory focus orientations.

A more recent study by Scholer, Zou, Fujita, Stoessner and Higgins (2010) investigated the implication of Regulatory Focus Theory for the understanding risk-seeking behaviour under loss. Prevention focus motivates people to secure non-loss and to avoid losses; whereas promotion focus motivates people to approach gains and to seek advancement away from non-gain. Hence, a state of loss (when individuals have fallen below the status quo) is of more concern under prevention focus rather than under promotion focus. When prevention focused individuals find themselves in a state of loss (below the status quo), they would be willing to take risks to do whatever is necessary to get back to the status quo. Using a stock investment scenario, Scholer et al. (2010) found supporting evidence of the association between prevention focus, risk-orientation and decision-making, under loss. Their results also suggested that people with prevention focus are more motivated to change strategic means when such change allows them to avoid losses; whereas people with promotion focus are more motivated to change if it allows them to attain something more positive (Scholer and Higgins, 2013). This finding offers an alternative explanation for status quo bias in judgment. Preserving status quo is more characteristic of prevention focus in state of gain attained and it is more characteristic of promotion focus in state of loss made.

Judgment made on one part of the issues under uncertainty is a disjunctive event, the likelihood of which is the probability than any one of the multiple components in question materializes. Whilst the judgment made on the whole set of issues is a conjunctive event,

the likelihood of which is the probability that all components in question materialize. Psychology literature suggests a judgmental bias in which people misperceive the likelihood of disjunctive and conjunctive events (Bazerman, 2005; Brockner, Paruchuri, Idson and Higgins, 2002). People often underestimate the likelihood of disjunctive events and overestimate the likelihood of conjunctive events. Brockner et al. (2002) found a relationship between regulatory focus and misperception in disjunctive and conjunctive probability estimates. Promotion focused individuals were more accurate in judging probability of disjunctive events – e.g., tossing coin for 10 times, the probability that there will be at least one 'head' / 'tail', whereas prevention focused were more accurate in judging probability of conjunctive events – e.g., the probability of 'heads' / 'tails' out of 10 tosses. That means, misperception in disjunctive events is more associated with prevention focus; misperception in conjunctive events is more associated with promotion focus. Therefore, it can be implied that promotion focused people are better at making judgment on combined events as a 'whole', while prevention focused people are better at making judgment on separated events, in 'parts'.

In summary, promotion focus and prevention focus have distinct effects on cognitions, and lie behind heuristics and bias in judgment, and therefore, differences in regulatory focus can be applied to explain why some individuals fall into certain judgmental fallacies and others don't. This knowledge is important to audit judgment. As certain bias in judgment may be more characteristic of either promotion or prevention focus, situational activation or inhabitation of either regulatory focus may help reduce adverse impact of cognitive limitations on audit judgment and prevent judgmental errors due to heuristics and bias.

1.3.2.2 Theories in decision-making science

Earlier studies have also applied Regulatory Focus Theory to profound theories in decision-making science to advance the knowledge of the cognitions behind judgment. Shah and Higgins (1997), for instance, examined the impact of regulatory focus on the classic expectancy × value theory developed by Feather (1982). The classic view suggests that the motivational intensity is associated with the product of expectancy – the belief that effort devoted will result in attainment of desired outcome, and value of goal attainment. 'The motivational intensity is the highest when the product of the expectancy and value is highest' (Higgins and Spiegel, 2004, p 173). Empirical findings have been inconsistent. It was proposed by Shah and Higgins (1997) that the interaction between expectance and

value is determined by individuals' strategic preferences. Hence, it might be the differences in regulatory focus that underlie the inconsistency in literature (Shah and Higgins, 1997; Higgins and Spiegel, 2004). Individuals with a promotion focus adopt eagerness strategy to ensure attainment and can be expected to be motivated by both high expectancy and high value. Whereas those with a prevention focus, inclined to adopt a vigilant strategy to ensure safety and to consider goals as necessities, are generally less likely to be motivated by expectancy. The results of their study supported these propositions: a stronger promotion focus is found to increase the classic effect whereas a stronger prevention focus was found to reverse the effect, demonstrating a negative expectancy × value multiplicative effect on goal commitment, i.e., the effect of expectancy becomes smaller as the value of goal commitment increases (Higgins and Spiegel, 2004). Foster, Jens, Grant, Idson and Higgins (2001) found that success feedback received on prior performance increased expectancy for the following performance among promotion focused participants; whereas no effect was observed among prevention focused participants. Failure feedback decreased expectancy for the sequential performance among prevention focused participants, and it had no effect among promotion focused participants. Therefore, expectancy in promotion focus is associated with positive outcome and feedback and expectancy in prevention focus is associated with negative outcome and feedback.

Another example is the well-established prospect theory (Kahneman and Tversky, 1979; 1986; 1992), which models the utility function of the value of gains versus losses over uncertainty. The prospect theory proposed that the utility of a prospective outcome is the product of its subjective value and its decision weight. The perceived intensity of losses is discounted over uncertainty slightly less than the perceived intensity of gains, indicating a non-linear transformation of probability. Loss looms larger than gains. For example, a bet with even chance to win and loss will only be acceptable, to most people, if the value of gain from winning is considerably larger than the possible loss. The classic assumption of prospect theory that people discount over uncertainty on positive outcomes more greatly than on negative outcomes is more characteristic of prevention focus disposition (Halamish et al, 2008).

1.3.2.3 Regulatory focus and temporal distance

Research on intertemporal choice suggests the existence of a time dimension in judgement of utility. The value of an outcome tends to be discounted over both uncertainty and

temporal distance. Intertemporal choice refers to a choice among options with different outcomes at different points in time, e.g., receiving £10 today or receiving £12 a week after (Soman et al., 2005).

There have been some studies looking at the effect of regulatory focus on temporal distance. Basically, promotion focus is often associated with maximal goals, reflecting the most that one could wish for; whereas prevention focus is often associated with minimal goals, reflecting necessities. Hence, a promotion focus is often set as a long-term goal that it tends to predominate for temporally distant goals; a prevention focus is often linked to current situation that requires immediate pursuit. As a result of the above, proximal goals are characterized by more balanced consideration of both promotion and prevention focused concerns.

Pennington and Roese (2003) reported regulatory focus as a common thread linking a variety of temporal shifts in judgment, such that the greater temporal distance increases the relative impact of promotion over prevention focus. Under greater temporal distance, people think they have sufficient time and resources, and therefore they feel free to engage in a promotion focus; whereas as the temporal horizon decreases, individuals start to realize resource depletion and might prefer a more cautious approach of goal attainment which thereby increases the importance of prevention focus.

1.3.3 General discussion – implications in audit judgment

Regulatory Focus Theory proposed two self-regulation systems – promotion focus and prevention focus, that are fundamentally different in how they impact on human cognition, behaviours and emotions. This section of the chapter offers an introduction of the theory and the various effects of regulatory focus dispositions in human cognition and judgment under uncertainty. Thus, it is proposed that Regulatory Focus Theory (RFT) has important value in audit JDM research and that it may help to explain the incidence of unconscious bias in audit judgment.

Firstly, the theory offers new perspectives on existing understanding of cognitive limitation in audit judgment. The distinctive effects of promotion focus versus prevention focus on human cognition can be applied to better account for differences in judgment made among people. For instance, people with promotion focus tend to make risky responses in general,

but in situations of loss, individuals with prevention focus are more likely to take high risk to revert to non-loss situation.

This distinctiveness between promotion focus and prevention focus can also be applied in audit training and education. One objective of audit is to assure the absence of material misstatement in financial statements. It is likely that the confirmatory exercise of audit to check assertions in financial statements is more characteristic of prevention focus with motivation to insure against errors. Since regulatory focus can be stable as a chronic character, prevention focused individuals can be expected to perform better in tasks that require continuous attention to details. However, this does not necessarily suggest prevention focus is more desirable in audit. Promotion focused individuals (who see the task as an opportunity to seek advancement) are, for instance, more ready for challenge and to be prepared to work on a difficult task (e.g., to deal with complex financial instruments and derivatives for the first time) than prevention focused individual who are more concerned with security and safety (Crowe and Higgins, 1997). In addition, paying attention to details and checking for errors can also be promotion focused framed that each error identified is considered as a 'hit' achieved. This can be incorporated in audit training and education so that those auditors who are chronically promotion focused align their pursuit of promotion goals in performing audit tasks. Moreover, regulatory focus can also be momentarily induced / activated, which means individual auditors can be primed with either promotion focus or prevention focus for specific audit task. In some experimental studies, participants are often asked to think (and write) about their ideals and aspirations to activate promotion focus, or about their obligations and duties to activate prevention focus. A possible way to apply this in audit practice may be to ask auditors to think in the avoidance manner (prevention focus) about key points that must not be neglected, versus, asking them to think in the approaching manner (promotion focus) about key points to target on.

Different strategies, eager or vigilant, may be adopted in performing audit tasks. For instance, when unexpected fluctuation in profit of the year is detected in preliminary planning of an audit job, auditors evaluate alternative hypotheses of the cause(s) of the fluctuation. They can adopt eager strategies to ensure inclusion of necessary hypothesis testing of the correct cause in the planning of the audit. Using exploratory approach (i.e., even-handed consideration of alternative point of view) to consider possilbe alternative causes of the fluctuation may represent an eager strategy adopted to hit on the 'most likely' cause(s). Alternatively, a vigilant strategy can be adopted to ensure elimination of

unnecessary procedures of testing incorrect causes. Using confirmatory approach (i.e., one-side attempt to rationlize a particular point of view) to focus on fewer probable alternative causes may represent a vigilant strategy adopted to concentrate on defense of the procedures taken. The adoption of different strategies leads to different numbers of hypothesized causes of fluctuation being generated, which potentially influences the planning of audit work. People often prefer use of particular stratgies and the strategic inclinations are associated with their regulatory focus dispositions (Higgins and Spiegel, 2004; Molden, 2012). Individuals with promotion focus prefer using eager strategies in their goal pursuit whereas individuals with prevention focus prefer using vigilant strategies. Hence, regulatory focus may be applied to study individual differences in preferred strategy in designing and performing audit procedures.

Secondly, empirical findings consistently suggested potential overreaction to loss and negative outcomes associated with prevention focus. Individuals with prevention focus are more likely to be influenced by sunk cost incurred as they refuse to recognize the cost as loss; they tend to be more willing to take risks to recover a loss. Applying this effect to audit judgment, it is plausible that there might be oversensitivity towards loss-related accounting information among prevention focused auditors.

The theory suggests that promotion focused individuals are primarily concerned with, and more sensitive to, the absence and presence of gains and positive outcomes; whereas individuals with a prevention focus are primarily concerned with, and more sensitive to, the absence and presence of losses and negative outcomes. Prior research has revealed a pervasive effect of this sensitivity towards different outcome-related information on individuals' information processing. People pay selective attention to information related to gain and positive outcome versus information related to loss and negative outcome (Molden, 2012). In a study by Higgins and Tykocinski (1992), this effect of regulatory focus was examined in a memory recall study in which subjects read about the daily life of a hypothetical person. The daily life information includes both 'positive' events (good news) about attainment of gains or positive outcomes, e.g., finding money on the street, and 'negative' events (bad news) about incurrence of losses or negative outcomes, e.g., being trapped in traffic jam. Promotion focused subjects recall more 'positive' events while prevention focused subjects recall more 'negative' events. Results of the study suggested a relationship between regulatory focus and individuals' sensitivity to information about 'positive' and 'negative' events (good versus bad news) so that individuals recall more relevant information from memory. This fundamental effect can be

applied to audit judgment that auditors pay selective attention to good news and bad news about the client's financial performance. Promotion focused auditors, being primarily concerned of 'positive' events, can be expected to pay more attention to information indicating good financial performance; whereas prevention focused auditors, being primarily concerned of 'negative' events, can be expected to pay more attention to information suggesting poor financial performance. Hence, auditors' regulatory focus orientations may influence their processing of accounting information / audit evidence processed and their retrieval of processed information in the process of making judgment.

Thirdly, there is also a time dimension in judgment under uncertainty. People make trade-offs between value and temporality (i.e., distance in time of its occurrence). Prior literature has largely overlooked temporal discounting on past events. Among scarce studies on regulatory focus and temporal distance, empirical findings suggested association between dominance of promotion focus in situations more temporal distant and dominance of prevention focus in situations more proximal. Hence, it is reasonable to expect effect of regulatory focus on cognition of temporal distance in judgment.

Discussion on plausible implication of regulatory focus in audit judgment is continued in the Chapter Four, where research questions and hypotheses of this thesis are set out.

1.4 Regulatory Fit and Persuasion

In addition to the direct impact of individuals' regulatory focus dispositions on human cognitions, behaviours and emotions, Regulatory Fit Theory (Higgins, 2000; 2006; Higgins et al., 2003) emphasizes the importance of the goodness of fit between one's regulatory focus and the strategic means taken in pursuit of one's goal. The manner of pursuing a goal either sustains or disrupts one's regulatory focus orientation. Individuals experience fit when the preferred means are used (Cesario, Higgins and Scholer, 2008). Consider, for example, the effect of regulatory focus in context of a task involving a potential speed versus accuracy trade-off: Higgins et al., (2003), studied just such a situation and found that individuals with a prevention focus experienced regulatory fit, which sustained their focus, when they adopted a vigilant strategy involving an emphasis on accuracy and the ensuring of correct rejections. Prevention focused individuals experienced regulatory misfit (non-fit), the condition of disruption, when the emphasis of the task was on speed.

Regulatory fit has two basic components: feeling of rightness and strength of engagement (Avnet and Higgins, 2006b). Firstly, individuals feel right about their action in goal pursuit. The feeling of rightness can inform individual's evaluation of different aspects of the action (Cesario and Higgins, 2008), e.g., engagement in the action and confidence, and leads to more intense reaction to evaluations (Aaker and Lee, 2006). Secondly, regulatory fit increases individuals' strength of engagement in their goal pursuit (Cesario et al., 2008). People with promotion focus would 'experience greater motivational intensity' when eagerness means are used other than when vigilance means are used (Higgins and Spiegel, 2004, p183).

When the manner of pursuing a goal suits people's regulatory orientation, the value of the goal pursuit process increases for them (Higgins and Spiegel, 2004). Higgins (2002) proposed a model to illustrate the function of regulatory fit in decision-making. This model conceptualizes regulatory fit as a source of value creation in motivating decisions as well as a distinct factor supplementing outcome values. Research in the field of persuasion science suggests that the feeling of rightness from regulatory fit contributes to the persuasiveness of advocacy messages processed. In addition, the intensified motivational effect of fit also was associated with positive responses / reactions towards advocacy positions that sustained subjects' regulatory focus orientations (Aaker and Lee, 2006).

The rest of this section of the chapter is structured as follow. Subsection 1.4.1 explains the value creation aspect of regulatory fit and gives a general introduction of the Outcome Value Model (Higgins, 2002). Subsection 1.4.2 looks at studies on the effect of regulatory fit on persuasion – referred as 'persuasion fit' in this thesis, and discusses plausible implication of persuasion fit in audit judgment. Subsection 1.4.3 explains the three main methods used to induce fit persuasion fit studies and explores feasible applications of fit induction methods in designing audit experimental studies. This subchapter finishes with a brief summary in Subsection 1.4.4.

1.4.1 Value from fit and outcome value model

An important implication of regulatory fit theory is the creation of value from fit. 'Positive and negative value can be attached to attitude objects, one's thoughts or styles of processing information' (Vaughn, 2010, p xi). Empirical findings suggest that these values often come from considerations such as the pleasure or pain of the possible or actual outcome. Regulatory fit theory proposed a new source of values as a result of good or bad matches between individual's self-regulation orientation and the means of engaging with a task (Higgins, 2000; 2005; 2006). A good match represents fit that creates positive values and a bad match represents misfit that creates negative values.

Higgins (2002) suggests that people are motivated to make certain decisions that produce favourable values like positive outcomes or utilities. The outcome valance of decision itself together with the value created from regulatory fit in the manner of pursuit of decision outcome both contribute to the value of a decision made.

Self-regulation creates value of decision 'when the consequences of a decision are relevant to the regulatory orientation of the decision maker'. A decision may lead to gain (positive outcome benefit), non-gain/non-loss (breakeven), or loss (negative outcome benefit). People are motivated to make decisions that produce positive outcomes. 'The psychological value of an outcome is not simply its objective value' (Higgins, 2002, p177). Kahnman and Tversky (1979)'s Prospect Theory suggested that the psychological value of loss outcome is more significant than the psychological value of gain outcome of the same amount. That is, a small amount of loss and a greater amount of gain is psychologically considered as having same significance in judgment. The subjective value of an outcome is also affected by the individuals' regulatory focus orientations. Additional objective value

obtained on top of the non-loss condition does not create additional subjective value, as both are considered as equally favourable in prevention focus; whereas, non-gain and loss are equally unfavourable in promotion focus regardless of the difference in their objective values. Since regulatory focus orientation can be either a chronic difference or situationally manipulated among people, 'the same outcome can have different subjective value to different people or to the same person at different times' (p177).

Not just the outcome of a decision has value; the means of the decision-making can also have value. People prefer use of particular strategies while pursuing outcomes according to their regulatory focus dispositions. Hence, strategic means applied in decision-making that fit with decision maker's regulatory focus orientation can have value. Certain strategic means naturally sustains / fit one's regulatory focus better than others do. For instance, in a recognition memory task in Crowe and Higgins (1997), it was found that an eagerness strategy set to ensure hits on the correct items, even at the cost of accepting incorrect items sustains promotion focus; whereas a vigilance strategy of ensuring correct rejection even at the cost of missing correct items sustains prevention focus. The sustaining of strategic means 'will not only be the dominant response tendency but will also have an additional experiential quality of value from fit' (Cesario, Grant and Higgins, 2004, p 389). The fit between an individual's regulatory concern and the means applied also contributes to the decision value.

Value from fit proposes that fit with an individual's regulatory concerns will generate a feeling of rightness. Another source of 'rightness' is established by rules, standards or principles – value from proper means. If proper procedures / process of reaching a decision is established by rules or guidance, extra decision values may be added in by following this proper means in the process of decision-making. The decision value created from following proper means may be applicable in audit context. For instance, auditors sometimes utilize last year's audit as guidance for current year's audit job. If procedures adopted in last year's audit had been approved by superiors, it is also likely it may also be considered as proper in the current year. Being perceived as proper means established in past year's audit, auditors are more likely to follow, among competing procedures than can be applied, the procedures applied in last year's audit because it creates extra decision value. In addition, applying assisting decision aid may also offer extra decision value in audit judgment.

1.4.2 Persuasion fit

Individuals experience a feeling of rightness and they feel more strongly engaged when they make decisions in the manner that aligns with their regulatory focus orientation (Lee and Higgins, 2009). Message framings can also be utilized to foster regulatory fit, which create the feeling of rightness and strengthened engagement by leveraging gains-related and losses-related outcome to match with individuals' regulatory focus concerns.

One important implication of this feeling of rightness in decision-making is its momentary impact on individuals' evaluations, responses and actions taken. The "feeling of rightness" from means intensifies whatever reaction / response individuals may have at that time (Aaker and Lee, 2006, p16; Avnet and Higgins, 2006a; 2006b; Lee and Higgins, 2009). Thus, the feeling of rightness about the message received can be expected to positively affect its persuasiveness of a positive message so that the positive responses become more positive. Similarly, negative responses will become more negative.

Regulatory fit also increases the strength of individual's engagement with the messages received. The strengthened engagement with the message also makes recipients feeling more persuaded. Lee and Higgins (2009) suggested that the feeling of rightness and the strengthened engagement are obviously related. Strongly engaged in an action makes an individual feel right about the action; and feeling of rightness about the action makes the person more strongly engaged[6].

Hence, regulatory fit relates positively to the persuasiveness of messages (Lee and Aaker, 2004; Aaker and Lee, 2006; Avnet and Higgins, 2006a; 2006b; Lee and Higgins, 2009). This effect of regulatory fit on persuasion is referred as 'persuasion fit' in this thesis. Prior research also documented evidence of persuasion fit to enhance the processing fluency of messages received (Lee and Aaker, 2004); and to influence attitude change in processing message received (Koenig, Cesario, Molden, Kosloff and Higgins, 2009). Prior research on persuasion fit will be discussed in more details in the following section together with the regulatory fit induction methods applied in those studies.

[6] Feeling of rightness attracted more attention in prior literature though strength of engagement also contributes to regulatory fit effects (Avnet and Higgins, 2006b). The separate, conjoined or interactive effects of these two components of regulatory fit are to be addressed in future research (Lee and Higgins, 2009, p324). So far, no empirical evidence in the literature has indicated different effects of the two. Therefore, in this thesis, the two components are considered together as a combined regulatory fit effect on persuasion.

1.4.3 Induction of regulatory fit

There are various methods of regulatory fit induction. Induction methods can vary in the sources of fit experience (e.g., fit from sustaining experience in manner of action or from matching messages exposed); in the way of how fit experience is constructed (e.g., experience created from action taken or observation of actions by others); and, in the scope of fit experience, i.e., either within the task (integral) or independent of the task (incidental) (Motyka et al., 2014).

Three induction methods have been applied to create regulatory fit / misfit in persuasion studies:

- Message matching (e.g., Lee and Aaker, 2004) – by matching the message framings applied with individuals' regulatory focus orientation;
- Integral fit (e.g., Avnet and Higgins, 2006a) – by creating an integral experience of fit by applying appropriate strategic means that sustains one's regulatory focus orientation within the task;
- Incidental fit (e.g., Cesario, Grant and Higgins, 2004; Koenig et al., 2009) – by creating an incidental sustaining experience of fit by using appropriate strategic means applied in a prior activity independent of the task.

The following of this subsection explains each method in more details.

1.4.3.1 Message framing / matching

The first method of regulatory fit induction that has been applied is to frame the persuasive message in a way that fits or does not fit the regulatory orientation of the message recipient (Cesario, Grant and Higgins, 2004). Alternatively, persuasion fit can be created within the persuasive message by the matching of the message framing with the content of the message, e.g., gain-framed messages advocating a product by describing potential benefits of the product (Lee and Aaker, 2004). The experience of persuasion fit has been shown to contribute to feelings of rightness about the messages concerned and to their persuasiveness (Cesario, Grant and Higgins, 2004).

Persuasion studies most often use gain frames (focusing on the desirable end-states) and loss frames (focusing on the undesirable end-states) to build advocacy messages. To illustrate framing consider the examples used by Lee and Aaker (2004) of advertisements

for a bike carrier and a safety kit respectively. Applying a gain frame to the bike carrier advertisement it reads: “Great looks and exceptional engineering. This bike carrier does it all.” This gain-framed message focuses on the potential benefits obtained from having the product. Applying a loss frame to the advertisement for the safety kit it reads, “Don’t be stranded with a disabled vehicle without an emergency road and safety kit.” This loss-framed message focuses on the possible benefit lost by not having the product.

The advocacy messages in gain frames would create a desired end state consistent with promotion focus and those in loss frames would create a desired end state consistent with prevention focus. A match can be operationalized by matching the message framings and regulatory focus concerns. Match created in this manner makes individuals feel right about the advocacy message received and also enhances the processing fluency (Lee and Aaker, 2004). In this way, the subjective experience of fit from processing message with compatible frame and information content contributes to the effectiveness of the persuasion messages. Since regulatory fit is induced by matching different information content with either gain frame or a loss frame, the true value of the work by Lee and Aaker (2004) is its demonstration of how to operationalize message framing in practice. Utilizing compatible frame and information content with promotion focus or prevention focus concerns improves the effectiveness of message framing manipulation.

The conceptualization of gains (non-gain) and losses (non-loss) is consistent with the two distinct systems of regulatory focus (Lee and Aaker, 2004). Promotion focus is concerned with the presence and absence of gain; prevention focus is concerned with the presence and absence of loss. Matches between gain frames and promotion focused people, and between loss frames and prevention focused people, sustain individuals’ regulatory focus orientations and result in regulatory fit; whereas mismatches disrupt individuals’ regulatory orientations and result in misfit (Cesario et al., 2008). Empirical results found improved persuasiveness of the messages applied with framings that fitted with recipients’ regulatory focus orientations (Cesario et al., 2004).

Individual’s regulatory focus orientation is either measured or primed before delivering messages framed in the aligning manner to create fit. The match and mismatch framings with regulatory focus orientation are operationalized via distinct patterns between promotion focus and prevention focus, e.g., difference in sensitivity towards positive vs. negative outcomes and difference in preferred strategies (eagerness vs. vigilance) and targets (hits vs. misses), etc. In addition, both the matching and mismatching framings of

messages were describing potential gains and non-loss of the same advocated position (Cesario and Higgins, 2008), e.g., a glass of water half full vs. a glass of water half empty.

The effect of regulatory fit on the persuasiveness of messages is not dependent on the actual advocacy target. The advocated position employed in prior research has included, for example, the consumer's decision to purchase (Aaker and Lee, 2001; Lee and Aaker, 2004), and the decision to support a new after-school program for children and health and well-being (Cesario, Grant and Higgins, 2004, study 2).

Hence, it is feasible that the target can be neutral or unknown as long as the difference in persuasiveness of messages can be measured in experimental settings. In audit judgment, certain evidence may be considered as supporting, for instance, a going concern view of the business. Other evidence obtained may be considered as against a going concern. The target of persuasion is not present but the persuasiveness of the evidence determines auditor's final judgment. Therefore, it is hypothesised that the effect of regulatory fit induced by matching message framings can be applied in audit judgment. This hypothesis is first examined in Experiment 1 and information presented using matching message framings was perceived by participants as more persuasive, which was found to be more determinant of judgment made (see Chapter Four Section 4.3.1 on page 92).

1.4.3.2 Integral fit and incidental fit

Regulatory fit theory suggested that individuals experience fit when the preferred means are used in pursuing a goal. Therefore, in experimental settings, fit and misfit experiences can be created, by setting the manner of pursuing a goal to either sustain or disrupt the subjects' regulatory focus orientation. The experience of fit and misfit can be generated either within / integral to the experimental task or incidentally, in an unrelated setting independent to the experimental task.

Existing research that applies the incidental fit induction method primarily use the technique developed by Freitas and Higgins (2002) (e.g., Cesario, Grant and Higgins, 2004, study 3; Koenig, Cesario, Molden, Kosloff and Higgins, 2009). This technique utilizes a questionnaire paring goal pursuit with sustaining or disrupting strategies to induce fit and misfit. Individuals first list one ideal (promotion) goal or one ought (prevention) goals and then to describe how they might achieve their promotion or prevention goal using either

eager strategy or vigilant strategy. In the fit condition, individuals set a promotion goal and list eager strategies, or set a prevention goal and list vigilant strategies. In the misfit condition, those who set a promotion goal were to list vigilant strategies and those who set a prevention goal were to list eager strategies.

This method of fit induction explained above uses incidental sources. In Cesario et al. (2004) and Koenig et al. (2009), participants were informed that they were to perform in two separate studies in the experiment: The first created regulatory fit that was carried into the separate second experiment. An alternative method to induce regulatory fit is by manipulating experience of applying sustaining strategic means inside, integral to or within, the experimental task. Logically, if participants were asked to set their promotion or prevention goal for the experiment and describe their strategies to pursue the goal, the fit induced was integral to the experimental setting. However, prior research rarely uses this logic to manipulate fit experience[7].

Avnet and Higgins (2006a) operationalized an alternative logic to induce fit integrally – to induce fit from how a decision / position is reached. They gave participants a short description of features and claims of two different correction fluids. Participants were then asked to choose between two brands of correction fluids either based on feelings (about each product) or on reasons (evaluation of product features). The manner in which choice is made creates fit: making it via reasons fits with prevention focus; whereas making the choice via feelings fits with promotion focus. Hence, regulatory fit was created within the experimental task through the manner of how the decision was reached. Participants then indicate how much they would be willing to pay for the correction fluid. Their results suggested that participants were willing to pay more for the product chosen under regulatory fit. Promotion focused participants who made choice based on their feelings were willing to pay 50% more for their chosen product as compared with those who made the choice based on reasons. Prevention focused participants were willing to pay approximately 40% more for their chosen product if their choice was made based on reasons than on their feelings.

[7] Actually, there has been no existing study in the literature following this logic to induce regulatory fit. A plausible explanation might be due to the difficulty in designing an experiment to attach one's goal pursuit within a persuasion context without directing individuals towards certain decision or choice.

This method is evoked in Cesario, Higgins and Scholer (2008) as an intriguing but unexplored possibility for creating regulatory fit from affecting recipients' perceptions of how the advocated position in a persuasive message was reached. Cesario et al. (2008) also suggested the possibility that manipulation can be made inside the content of the persuasion messages: The process of how an advocated position was reached can be described in the persuasion messages, e.g., eager means applied to consider every possible option or vigilant means applied to carefully evaluating each of the best options to ensure avoidance of suboptimal choice being made (Cesario et al., 2008, p 453).

1.4.4 General discussion – implications in audit JDM research

This section (Section 1.4) has introduced Regulatory Fit Theory concerning the goodness of fit between individual's regulatory focus orientation and the means applied in goal pursuit.

This section started with the conceptual exposition of the impact of regulatory fit on decision-making: Higgins' Outcome Value model accounts for the value creation function of regulatory fit in decision-making. Fit experience creates positive decision values and misfit experience creates negative decision values. Individuals' regulatory focus concerns are associated with the psychological valuation of the outcome. An additional source of decision value is from applying proper means established by rules or standards, in the process of reaching a decision.

The experience of regulatory fit creates a feeling of rightness, which is an informative feeling – 'feelings-as-information' (Cesario, et al., 2004, p 388), in individuals' evaluations and judgments. Fit also strengthens one's commitment in the goal pursuit and therefore intensifies the motivational effect of individuals' regulatory focus (Avnet and Higgins, 2006b; Cesario and Higgins, 2008). These two components of regulatory fit have been applied to persuasion studies to explore the utilization of regulatory fit to enhance persuasion and documented evidence of a regulatory fit effect on improved persuasiveness of advocacy messages. Three induction methods have been applied to create regulatory fit / misfit in persuasion studies: message matching – by matching the message framings applied with individuals' regulatory focus orientation; integral fit – by creating an integral experience of fit by applying appropriate strategic means that sustains one's regulatory focus orientation within the task; and, incidental fit – by creating an incidental sustaining

experience of fit by using appropriate strategic means applied in a prior activity independent of the task. Prior research has documented supporting evidence for the persuasion fit effect; that regulatory fit improves persuasiveness of advocacy messages.

The theory of regulatory fit has been applied in audit JDM research yet. Procedures have become increasingly structured in modern audit practice: During the preliminary planning stage of the audit work, details of the audit procedures such as the required sample size and sampling criterion are incorporated into the audit work program. Subordinate auditors often simply follow guidance in the program to perform audit procedures. (More details regarding the structured audit program obtained from pre-experimental qualitative work are reported in Chapter Three of this thesis.) Some of the structured procedure may represent eager strategic means (e.g., substantive test on transactions with large values) or vigilant strategic means (e.g., careful and thorough check of samples to ensure no errors). Hence, auditors' performance in audit tasks may generate experience of regulatory fit / misfit that potentially influence their judgment.

There are various sources of regulatory fit so that individuals may feel right about the process of how a conclusion is reached (Cesario, Higgins, and Scholer, 2008) and how information is constructed and presented (Aaker and Lee, 2006). In addition, the feeling of rightness derived from regulatory fit experience is considered as relevant information in judgment – 'feeling-as-information' (Avnet and Higgins, 2006a). As interactions between the preparer of the audit working-paper and the reviewers can be viewed as a series of persuasion activities, the persuasiveness effect of regulatory fit (persuasion fit) may have important implications for research on audit judgment during the review process. The audit working-paper potentially creates a source of regulatory fit / misfit that may influence the reviewers' judgment, e.g., the justification on how the conclusion is reached, the way audit evidence and justification is organized, and the structure of the working paper.

In the discussion of the design of the message matching method of inducing regulatory fit (Subsection 1.4.3.1), it has been argued that persuasion fit effect is independent to the advocated position (persuasion target) set in experiments. That is, regulatory fit impacts on the means in persuasion rather than the ends. The content information for both promotion framed message and prevention framed message is the same in message matching manipulations (Cesario et al., 2008). The persuasion target can be any position in the context of the experiment, completely neutral or hidden. For instance, there is no clear persuasion target in Avnet and Higgins (2006a), and the persuasiveness of messages was

measured using the amount of money participants were willing to pay for the chosen product. Persuasion fit was not related to the choice of product, which is commonly utilized as the persuasion target in other studies, whilst it affected individual's valuation of the product. In addition, prior literature uses various persuasion targets (e.g., recommending an after-school program in Cesario et al., 2004; consumer choice to purchase a product in Aaker and Lee, 2001; Lee and Aaker, 2004). Therefore, it is proposed that persuasion fit effect can be applied to audit context. Experiment 1, 2 and 3 (reported in the Chapter Seven, Eight and Nine in this thesis, respectively) made the first attempt in the literature to apply persuasion fit to audit judgment.

1.5 Contributions of this thesis

This thesis seeks to introduce Regulatory Focus Theory and Regulatory Fit Theory to experimental research in audit judgment and decision-making (JDM). This thesis constructs experiments using a scenario setting analogous to audit to test the effect of individuals' regulatory focus orientations on cognitions in audit judgment (Experiment 4) and to test for the implications of the effect of regulatory fit on persuasion (persuasion fit) in audit judgment (Experiment 1, 2 and 3).

There has been no previous study applying these two concomitant theories into accounting and auditing research. Hence, the main contribution of this thesis will be to provide first empirical evidence in the current literature of audit JDM research to explore the implications of regulatory focus and regulatory fit in audit judgment and to promote recognition of their applicability in the field of audit JDM.

1.6 Thesis Outline

This thesis consists of eleven chapters. This introductory chapter has introduced the two concomitant perspectives, Regulatory Focus Theory (RFT) and Regulatory Fit Theory. After explaining the background and motivations of this doctoral research, the chapter has reviewed findings on the effect of regulatory focus and regulatory fit in decision-making. The plausible implications of the distinct effect of promotion focus versus prevention focus on cognitive aspects associated with information processing in audit judgment, such as sensitivity to different accounting information. It is also proposed that the persuasiveness effect of regulatory fit established in consumer choice research and health studies can be applied to audit judgment.

Following this introductory chapter, the rest of this thesis is structured as follow:

Chapter Two will set out the relevant literature for the contextual grounding of this thesis. The chapter reviews prior studies in the field of audit judgment and decision-making (JDM) research and in particular, on heuristics and bias in audit judgment, accountability, and audit review process. It is argued in the chapter that little knowledge has been gleaned in relation to the cognitive processes behind audit judgment. Past research on cognitive limitations in audit judgment reports evidence of auditors' use of heuristics and being susceptible to bias in judgment by replicating psychology studies in audit context (Nelson and Tan, 2005). Accountability has been considered as a potential mitigator of biased audit judgment. However, prior research primarily treats accountability as a specific type of pressure inherited from the audit environment, despite the fact that accountability has various subtypes due to its complex construct and differential characteristics. Audit judgment in the field of audit review process is more complicated due to the interactions between auditors who prepare the working-papers (preparers) and auditors who perform review on work performed (reviewers). Review process can be best understood as a set of persuasion interactions, according to Rich et al. (1997)'s persuasion framework. Chapter Two considers the lack of clear understandings on cognitions behind audit judgment in existing literature. It is proposed that psychology perspectives can help advance existing knowledge in the field of audit JDM.

Pre-experimental work in this thesis was carried out employing qualitative methods, including interviews with professionals and observations of audit field work and working-paper review. Findings from the pre-experimental work will be reported in Chapter Three.

Chapter Four will outline the research questions to be addressed in this thesis and specify the hypotheses developed and tested in experiments. A summary / an index of all research questions and hypotheses can be found at the end of Chapter Four (pp. 105-111).

Chapter Five will describe and justify the research design of this thesis. This thesis follows the experimental tradition of audit JDM research. The methodological approach of this thesis, hypothetico-deductivism, will be explained in the chapter. Experimental studies in social sciences are often criticized in respect of the issue of realism: This will be discussed in Chapter Five, covering mundane realism (in representation of real world event), experimental realism (regarding the validity of laboratory settings), as well as the validity of students as surrogates for audit practitioners. Chapter Five will also explain experimental design issues such as the execution of experiments, the development of case materials, and data analysis techniques. The integration of experiments and qualitative pre-experimental works in this thesis will be clarified before outlining details of the conduct of interviews and observations.

Four experiments have been conducted in this research. Results obtained in each of the experiment are reported individually in separate chapters. The research instruments used in the first three experiments (Experiment 1, 2 and 3) in this thesis are introduced in Chapter Six, with the construction of the case materials from scratch explained in detail. These three experiments examine the effect of regulatory fit / misfit on persuasiveness of accounting information in a scenario simulating audit judgment, each of them applied different regulatory fit induction methods. They will be reported in Chapter Seven (Experiment 1), Chapter Eight (Experiment 2) and Chapter Nine (Experiment 3) of this thesis. The forth experiment reported in Chapter Ten investigated into the effect of temporal distance and information processing styles on judgment under regulatory focus in an audit task.

Chapter Eleven concludes this thesis, providing a summary of main findings of the experiments and a discussion on their potential policy implications. The chapter will also discuss a few findings from the experiments for insights and inspiration on future studies. This thesis has contributed to existing literature of audit JDM as well as research methodology in terms of design issues for experiments applying Regulatory Focus Theory and Regulatory Fit Theory. The contributions of this thesis are outlined later in Chapter Eleven. Moreover, it is reckoned that the limitations of this thesis merit follow up studies for further investigation and future research opportunities.

Chapter 2: Literature review of Audit JDM research

2.1 Introduction

Chapter One has provided an overview of this thesis. Starting with a brief introduction of the background of this thesis and illumination of the motivations behind this piece of work, it has been proposed that Regulatory Focus Theory and Regulatory Fit, having proved their value in other fields of cognitive and behavioural research, should be used to help advance our current knowledge and understanding of audit judgment and in particular audit review processes. Prior research on audit review has been relatively fragmented and limited to a small number of aspects and issues in the review process (e.g., accountability, auditors' experiences). This literature will be reviewed in this chapter and certain gaps identified where regulatory focus theory and the notion of regulatory fit theory might be usefully applied.

The following sections of this chapter are structured as follow. Section 2.2 provides an introductory general review of research in the field of audit judgment and decision-making (JDM): It sets the scene and gives a brief overview of the development and purposes of audit JDM research. Section 2.3 introduces a popular research trend in this field since the 1980s, that is, heuristics and biases in audit judgment. Audit evidence is often persuasive rather than convincing. Subsection 2.4 looks at studies on the issue of persuasiveness of evidence. Accountability in audit processes has been recommended by some researchers as a potential mitigator to audit deficiencies, which has been most often studied as an intrinsic feature extracted from the process of audit review. Prior research on accountability, with particular reference to audit, is discussed in Subsection 2.5. This subsection also includes a brief discussion of the psychology of accountability. Section 2.6 offers a review of the literature on the audit review process. Starting with an introduction of audit review as a quality control mechanism (Section 2.6.1), previous descriptive studies of audit review are briefly reviewed in section 2.6.2. Prior experimental studies on audit review are summarised and briefly discussed in Section 2.6.3, with an emphasis on aspects relating to the interactions during the process of review. In Section 2.6.4, a persuasion framework of audit review proposed by Rich, Solomon and Trotman (1997) was introduced. This framework has inspired succeeding research in this field. Section 2.7 gives a conclusion to this literature review chapter.

2.2 Audit judgment and decision-making (JDM) research

Judgment and decision-making (JDM) studies in auditing is part of the psychology research on behavioural decision theory (BDT). Studies in this interdisciplinary line seek to understand how audit judgments are made and how they can be improved (Hogarth 1993; Trotman 1998) and usually employ experiment to find evidence to bear on issues in audit judgment (Solomon and Trotman, 2003).

Prior literature of audit JDM research basically served four purposes (Trotman, 1998). First, some studies aim to evaluate the quality of audit judgments. Such studies examine indicators of audit quality like the level of consensus between auditors (e.g., Trotman and Yetton, 1985); the accuracy and consistency of audit judgments (e.g., Trotman, 1985); and, the extent of biased audit judgment due to over-reliance on heuristics, such as recency effect (i.e., later information considered as being more important) (e.g., Kennedy, 1993; Anderson and Maletta, 1999) and anchoring (e.g., Joyce and Biddle, 1976; Kinney and Uecker, 1982).

Second, some JDM researchers were trying to describe the audit judgment and decision-making process and provide insights into the factors influencing auditors' performance. For example, research on information choice and information processing tries to offer knowledge on how auditors use information available to form judgment (e.g., Anderson and Kida, 1994 on source credibility; and Trotman and Sng, 1989 on confirmatory strategy, in information search).

Third, some research examines the role of knowledge and memory in audit judgment. For instance, Ramsay (1994) found seniors – reviewers at lower level, are better at detecting mechanical errors while managers – reviewers at higher level, are more accurate at detecting conceptual errors. Studies addressing this issue reported cost and efficiency gain by matching knowledge with specific tasks and helped explain why review mechanism adopted by audit firms uses a hierarchical structure.

Fourth, a number of researchers try to offer recommendations on how to improve the quality of audit judgment, through for example feedback from audit review (Miller, Fedor, and Ramsay, 2006) and the form of review – e.g., electronic or face-to-face (Agoglia, Hatfield, and Brazel, 2009; Payne, Ramsay, and Bamber, 2010). Trotman (1998) condensed the above four aims into the ultimate purpose of audit JDM research to improve

judgments.

A significant number of audit JDM research studies tested heuristics and biases in audit judgment. This type of study is concerned with the use of simplified judgment rules in audit. They are reviewed in next section (Subchapter 2.3). Among experimental works on information processing in audit, studies addressing the issue of persuasiveness of evidence specifically are discussed in Subchapter 2.4. Within the environmental and motivational factor category, studies addressing the issue of accountability are considered in Section 2.5, with a discussion of the psychology of accountability in Section 2.5.2.

Research on multi-person judgment and decision-making in audit usually examines interactions between auditors and auditors (e.g., audit review); auditors and clients (e.g., audit negotiation); and, auditors and other personnel in the financial reporting process (Nelson and Tan, 2005). The part of the literature on audit review is reviewed later in this chapter (Section 2.6). The pre-experimental fieldwork in this thesis was carried out to glean more information of audit review in practice. Findings from pre-experimental fieldwork are reported in next chapter of this thesis (Chapter Three).

There have been several review papers covering different periods. Hogarth (1993) reviewed early-stage studies in audit JDM and traced research in audit JDM back to several publications in 1950s. Hogarth suggested that the first generation of research in this area attempted to study the process of audit judgment systematically; to build descriptive models of audit judgment; and, to establish standards to evaluate audit judgment (Hogarth, 1993). Then in 1970s, theories and methods to guide audit research were imported from psychology literature in judgment and decision-making (Ashton and Ashton, 1995). Psychologist in the 1970s suggested that people do not always act rationally but refer to a range of heuristics that can lead to errors in judgment. Largely influenced by the remarkable work by Kahneman and Tversky' on heuristics and biases, the focus of audit JDM research from the 1980s shifted from 'how well' auditors make judgments to understanding 'how' such judgments are made. Since then, a large number of interesting studies have accumulated dealing with auditors' cognitive limitations, their use of heuristics and their susceptibility to biases (Nelson and Tan, 2005). Hogarth concluded his paper by reviewing findings in behaviour decision theory (BDT) and recommended a few possibilities for succeeding audit JDM research. A later review by Trotman (1998) provided a comprehensive examination of studies of audit JDM till late 1990s. More recent review by Nelson and Tan (2005) assessed the cumulative knowledge in the field for a

period of 25 years since late 1970s. Another chronological review of extent research of JDM by Trotman, Tan and Ang (2011) summarised studies in every decades during the past 50 years in the field of auditing, financial accounting and management accounting. These review papers represented different ways to categorize prior research (see Table 2.1 below).

Table 2.1 Various classification schemes of audit JDM research

Solomon and Shields (1995)	Solomon and Trotman (2003)	Trotman (1998)	Nelson and Tan (2005)
• policy capturing • heuristics and biases • multi-person information processing • probabilistic judgment • cognitive processes	• policy capturing • heuristics and biases • multi-person information processing • probabilistic judgment • knowledge and memory • environmental and motivational factor	• policy capturing • heuristics and biases • group decision making • information search • hypothesis generation and protocol analysis • knowledge and memory • environmental and motivational issue • decision aids	• task • person • interpersonal interaction

Solomon and Shields (1995) developed a theoretical framework scheme to classify research in audit JDM. They divided the literature into the five frameworks / topics: policy capturing[8], probabilistic judgment, heuristics and biases, cognitive processes and multi-person information processing. Since the late 1980s, evidence had been collected on the existence and effects of auditor expertise while there had also been an increasing number of research studies exploring the cognitive limitations of auditors and the influence of environmental factors in audit. Solomon and Trotman (2003) refined Solomon and Shields (1995)'s scheme by separating studies focussing on indicators of auditor's ability – knowledge and memory, from those concentrating on the environmental and motivational factors affecting audit as viewed in terms of a cognitive process framework.

[8] Policy capturing studies 'focus on the issues related to between-judgment consensus, the relative importance of cues, the functional form of the decision rule, and the judge's self-insight'. These studies often examine decisions like materiality judgments, internal control evaluation, reasonableness of forecasts, uncertainty disclosures, policy making and loan classification' (Riahi-Belkaoui, 2004, pp. 373-374).

Trotman (1998) provides an alternative reading and review of the literature. He focused on the process of audit judgment including the specific categories of audit judgment, including task like hypothesis generation, information search and information selection and the multi-personal aspects of the audit group decision-making process. With the growing number of research studies and expanded scope of research topics in the field, a more recent review paper by Nelson and Tan (2005) classified prior literature by pooling research interests in respect of three main features in the audit context: task, person and interpersonal interactions: The audit task, the auditor and his or her attributes; and, interaction between auditors and other stakeholders in task performance (Nelson and Tan 2005, p 41). The most recent review paper by Trotman, Tan and Ang (2011) provides a more general review of researches in a chronological order, which did not use classification of schemes in the field of audit JDM research.

2.3 Heuristics and biases

People rely on heuristics as simple 'rules of thumbs' when making judgment, which sometimes induce systematic errors. The argument drawn by Bazerman et al. (2002) asserted that the real problem behind audit failure is not conscious corruption, but unconsciously falling into judgmental bias. Empirical work in audit JDM research documents evidence of audit judgments being affected by heuristics and biases (see Smith and Kida, 1991; Trotman, 1998; Knechel et al, 2013, for review of research in different periods) because the same heuristics and biases that lead to systematic errors in general decision-making also apply to auditors.

Early stage research (in 1980s) in this field adopted experiments from Tversky and Kahneman's work and modified the tasks to fit audit context (Koch and Wustemann, 2009). Prior literature extensively studied the susceptibility of audit JDM to bias through the use of heuristics, including, for example, the representativeness heuristic in probability assessment, confirmatory strategies in information search, anchoring and adjustment.

Events that are judged as representative are considered to have a high probability of occurrence (Smith and Kida, 1991). People refer to representativeness heuristic[9] for an easy answer when making judgment about the probability of an event under uncertainty (e.g., making projections based on historical records). They focus on highly representative and salient factors while neglecting other less salient, but important, clues. Judgment under the representativeness heuristic is concerned with whether the event bears what the decision maker takes to be the essential, or typical, characteristics of the population. When evaluating randomly drawn samples of data, the sample distribution is regularly perceived to be the most salient factor, while sample size is often neglected (Tversky and Kahneman, 1974). Although it is a quick and convenient substitute to proper statistical computation, it potentially leads to fallacies like neglecting base rate (e.g., Joyce and Biddle, 1981a; Kida, 1984), disregard or ignorance of the sample size (e.g., Tversky and Kahneman, 1974; Uecker and Kinney, 1977), as well as insensitivity to the predictability and source reliability of data (e.g., Joyce and Biddle, 1981b).

The literature on confirmatory bias in general suggests an idea that people tend to stick to

[9] 'For example, if someone was to describe an older woman as warm and caring with a great love of children, most of us would assume that the older woman is a grandmother.' – example from *study.com* (http://study.com/academy/lesson/heuristics.html)

their favoured hypotheses 'with unwarranted tenacity and confidence' (Klayman, 1995). Studies on confirmatory strategies suggest that preferential attention to information confirms the favoured hypothesis (or disconfirms an unfavoured hypothesis) being tested. As a result, evidence confirming the tested hypothesis will be perceived as more informative. Prior literature has provided some evidence of the adoption of confirmatory strategies in searching for information in audit (Kida, 1984; Ashton and Ashton, 1988; Smith and Kida, 1991; McMillan and White, 1993), but limited or partial support. Kida (1984) tested the confirmatory bias effect of hypothesis framing (suggesting error / misstatements, or non-error) on evidence search and processing in respect of going concern decisions. Employing confirmatory strategies, auditors will attend to more evidence of viability under the non-error frame – no misstatement is suggested and more failure evidence under the error frame – misstatement is suggested. Participating auditors were found to attend to significantly more failure evidence in error frame, suggesting the existence of confirmatory strategies. However, the same effect was also reported from those in the non-error frames, which means the combined results supports conservatism instead of confirmatory bias. McMillan and White (1993) reported congruous findings.

Research on anchoring and adjustment heuristic suggested that auditors sometimes rely on an unaudited book value to make estimates (Trotman, 1998). Starting from this anchor, they make adjustment accordingly to get the final estimation, but 'adjustments are typically insufficient' (Tversky and Kahneman, 1974). For instance, in an analytical review task in Kinney and Uecker (1982), auditors were exposed to management's unaudited balances. The results suggested that auditors were prone to regard the unaudited balances as starting point in their judgment. Bell and Wright (1997), when discussing the findings of Kinney and Uecker (1982), alerted that a client might have incentives to create a 'stable growth' trend in the financial statements. It is therefore conceivable that a client deliberately attempt to bias auditors via fabrication. Anchor was reported to be effective even when individuals were aware of its influence. Chapman and Johnson (1999) employed two sets of anchors in their studies that were either informative or uninformative to the judgment. Among those participants who claimed that the anchor was uninformative, a significant anchoring effect was observed. Out of individuals' awareness, anchor presented subliminally remained effective (Mussweiler and Englich, 2005[10]).

[10] Mussweiler and Englich (2005) asked participants to think about the annual mean temperature of Germany that aimed to present an anchor value. The setting was found to achieve a significant anchoring effect.

Gibbins (1984) characterized auditing as a sequential process of obtaining and evaluating evidence to continually update beliefs about the financial statement assertion. Hogarth and Einhorn (1992) proposed a belief-adjustment model to demonstrate the anchoring and adjustment process. The model suggests that prior beliefs serve as anchor values and are adjusted in the light of new evidence (Koch and Wustermann, 2009). Holding a prior belief, evidence disconfirming this belief will result in a large decrease in revised belief; whereas confirming evidence will result in little revision in prior belief unless it is sequentially received after a substantial revision in favour of disconfirming evidence (Trotman, 1998). Following this logic, new evidence will have the strongest impact when it contradicts prior beliefs (Koch and Wustermann, 2009). This belief-adjustment model also provided explanation of the impact of processing information in sequential form on final judgment – order effects. For example, when auditors are presented with information in different orders, the dominating effect of earlier information processed on final judgment is referred as primacy effect; and the dominating effect of latter information processed on final judgment is referred as recency effect.

Applying the earlier version of belief-adjustment model (Einhorn and Hogarth, 1985), Ashton and Ashton (1988) conducted the first study to test the applicability of the model in audit context. Using a series of simplified experiments, they examined the effect of information order and consistency of information on revision of likelihood assessment in two different response modes (i.e., end-of-sequence or step-by-step revision). Later studies adopted similar design and examined recency effects in richer context of audit and reported proof that factors such as task complexity (e.g., Tubbs, Messier and Knechel, 1990), task specific experience (Trotman and Wright, 1996), and accountability (Kennedy, 1993; Ashton and Kennedy, 2002) mitigate recency effects.

Generally, research in this line concludes with evidence suggesting that auditors use heuristics when making judgment and that they are susceptible to biases (Nelson and Tan, 2005). Some have questioned the validity of those experimental findings in terms of whether the tasks and subjects employed are appropriate representative of audit context (Smith and Kida, 1991, quoting Edwards, 1983). Auditors are found to be least susceptible to biases when they are familiar with the task and have an appropriate level of expertise (Smith and Kida 1991). It was argued that the ‘generalized normal audit human mind is not an appropriate target for research on human intellectual performance, noting that minds vary, that tools can help, and that expertise (presumably in the subject matter of the task and in probability itself) can also help’ (Edwards, 1983).

‘The use of heuristics is not always damaging’ (Knechel et al., 2013, p 393). Heuristics are simplified judgmental rules, which means under certain conditions, they can be efficient and effective (Smith and Kida, 1991), e.g., information search aiming at confirming evidence could be an efficient search strategy and not necessarily a bias.

Audit JDM research on heuristics and biases generally examined the problem of cognitive limitation in audit and some concluded that particular aspects of audit practice such as expertise and accountability potentially inhibit their adverse effect on audit judgment. Findings from decision-making science have been taken face value. Previous studies basically replicated experiments from psychology literature in audit settings without fuller understanding of the underpinning cognitive process. As a result, it is hard to explain why some auditors fall in judgmental fallacies while others don’t and how the effects of heuristics and biases interact with various audit features.

2.4 Evidence evaluation and persuasiveness of evidence

Evidence is central to audit judgment while often persuasive rather than convincing (AICPA, AU Section 230.11). It is a professional judgment to determine whether the evidence gathered is sufficiently persuasive. 'The auditor shall design and perform audit procedures that are appropriate in the circumstances for the purpose of obtaining sufficient appropriate audit evidence' (ISA 500, paragraph 6), and the judgment as to what constitutes sufficient appropriate audit evidence is influenced by persuasiveness of audit evidence (ISA 330, A 62).

The perception of persuasiveness of evidence involves a complex process that may be affected by attributes such as source, message and recipient (Kaplan, O'Donnell and Arel, 2008). Prior research examined how audit judgment is affected by variations in characteristics of audit evidence such as source credibility (e.g., Anderson and Kida, 1994; Kaplan et al., 2008). Results from prior research suggested a relationship between the persuasiveness of evidence and the strength of clients' internal controls (Asare and Davidson 1995). The more effective the internal controls, the more persuasive the information generated. Hirst (1994) highlighted the importance of information source when considering the inferential value of evidence. Client management is one of the most pervasive sources of audit evidence and auditors have incentives to utilize information from client management (Kaplan, O'Donnell and Arel, 2008). For instance, it was revealed in an early study (Hirst and Koonce, 1994) that when unexpected fluctuation are detected, auditors typically use client management as the first source for investigation and potential explanation, as well as a source for confirmation / disconfirmation of the hypotheses they have generated. Nevertheless, information from client management may lack objectivity due to possible incentives to manage earnings or to hide fraudulent reporting. Hence, such information tends to be discounted by auditors due to lack of reliability of the source of information. For instance, Hirst (1994) found that in an analytical review context auditors anticipate clients' incentives to smooth earnings. Therefore, explanations from the client were considered as less diagnostically valuable than those from a fellow auditor.

There had been few attempts in prior literature to derive more specific characteristics of persuasiveness of evidence. Caster and Pincus (1996), for example, referred to old legal theory and outlined characteristics including number of tests, dispersion of estimates, composition of the evidence set, source reliability, directness of evidence, and deviations from expectations. Discussions of Caster and Pincus (1996) criticised Caster and Pincus

(1996) in terms of its overweight on theoretical / philosophical perspectives and loss of insights in practice. It had been argued that the significance of these characteristics can be proved with simple statistical analysis (Srivastava, 1996) and are agreeable based on common sense and experience alone (Hollingshead, 1996). Yet, understanding on the perception of persuasiveness of evidence is scarce.

Professional standards sometimes provide suggestions on obtaining persuasive audit evidence in risk assessment (e.g., ISA 330, A19) and tests of controls (e.g., ISA 330, A28) (as shown in Table 2.2 on the next page). As exemplified in ISA 330, persuasive evidence can be obtained through increasing the quantity of the evidence or emphasizing on the objectivity of information source (A19). When it is impractical to gather evidence from objective sources, ISA 330, A28 suggested that extending substantive testing might be an alternative and the extent of testing should be determined by examination of the effectiveness of internal control.

Table 2.2 Guidance on persuasive evidence from professional standards

International Auditing Standards (ISA), No. 330	
A19	When obtaining more persuasive audit evidence because of a higher assessment of risk, the auditor may increase the quantity of the evidence, or obtain evidence that is more relevant or reliable, for example, by replacing more emphasis on obtaining third party evidence or by obtaining corroborating evidence from a number of independent sources.
A28	When more persuasive audit evidence is needed regarding the effectiveness of a control, it may be appropriate to increase the extent of testing of the control. As well as the degree of reliance on controls, matters the auditor may consider in determining the extent of tests of controls include the following: • The frequency of the performance of the control by the entity during the period. • The length of time during the audit period that the auditor is relying on the operating effectiveness of the control. • The expected rate of deviation from a control. • The relevance and reliability of the audit evidence to be obtained regarding the operating effectiveness of the control at the assertion level. • The extent to which audit evidence is obtained from tests of other controls related to the assertion.

Despite recommending necessary procedures, there has been no guidance regarding the judgment of the persuasiveness of evidence obtained. There is no information on what

quantity of evidence can be regarded as persuasive, or to what extent, evidence obtained from substantive testing can be judged as persuasive.

Overall, limited insights have been acquired in prior literature and little is known about how auditors judge the persuasiveness of evidence (Salterio and Koonce, 1997; Kaplan, O'Donnell and Arel, 2008). Such understanding is of vast importance in situations where appropriated accounting treatment is not obvious (Salterio and Koonce, 1997) and therefore requires subjective judgments.

2.5 Accountability

Accountability is defined as the existence of social pressure to justify one's judgments to significant others. Evidence from early studies (Gibbins & Emby, 1985) suggests that auditors clearly perceive the importance of accountability and view the ability to justify a decision as one of the most important qualities of professional judgment.

In the audit JDM studies, accountability is often viewed as a variation of pressures from the audit environment. It is expected that the existence of accountability pressure may alleviate the shortcoming of audit judgment. Kennedy (1993) experimented on a group of executive MBA students to test whether accountability mitigates the recency effect using a going concern task. The recency effect, that was revealed when accountability was absent, vanished when accountability was imposed. Johnson & Kaplan (1991) reported that mere presence of accountability was found to improve consistency of judgment. Early studies utilized a simple between-subjects design that divided auditors into two groups with the presence and absence of accountability pressure (Lord, 1992). Prior literature did not differentiate between various accountabilities, whilst 'accountability is a complex construct with multiple forms and levels' (DeZoort, Harrison, and Taylor, 2006, p 376).

2.5.1 Accountability in audit JDM research

Depending on how accountability is imposed, four levels of accountability pressure have been attended in prior literature of audit JDM: anonymous, review, justification, and feedback (DeZoort, Harrison, and Taylor 2006). Anonymous simply refers to absence of explicit accountability – 'zero' accountability. Review pressure is the weakest form of accountability where individuals are informed that others will review their judgments. Research on the effect of the review pressure usually examines differences in judgment between auditors who expected their work to be reviewed and auditors who expected their work to remain anonymous (e.g., Gong, Sarah, and Noel, 2014; Tan and Kao, 1999; Koonce, Anderson, and Merchant, 1995; and, Tan, 1995). Justification pressure represents a higher accountability pressure, which emerges when individuals are told that they will be asked to provide justification to evaluative others. Researchers on justification pressure typically ask subjects to prepare a written justification of their judgment for the superior whom is going to review their work (e.g., Asare, Trompeter, and Wright, 2000; Glover, 1997). Some studies build up a scenario and convince subjects that they will be required to justify their judgment to a reviewer (e.g., Chang, Ho, and Liao, 1997; Hoffman and Patton,

1997; Johnson and Kaplan, 1991). As the highest level of accountability pressure, feedback emerges in situations where individuals expect formal evaluation feedback on their judgments (e.g., Cloyd, 1997; Ashton, 1990). Dezoort et al. (2006) asked participants to rate their perceived pressure after random allocation to different levels of accountability. The rating of perceived pressure is consistent with the level of accountability pressure applied.

Results of previous studies have indicated that holding individuals accountable can influence their judgment and decision-making process. Koonce et al. (1995) found that auditors provided more justification for their judgment under review pressure. DeZoort, Harrison, and Taylor (2006) manipulated four levels of accountability in a task of materiality judgment and reported correlation between time spent on judgment and the strength of accountability. Nevertheless, the presence of accountability does not guarantee an improved judgment. Chang et al. (1997) observed no improvement in task performance apart from the increased effort subjects spent in a problem-solving task. Hoffman and Patton (1997) studied the dilution effect of irrelevant information in risk assessment under justification pressure. Auditors exhibited the dilution effect in both the condition with the presence of justification pressure and the condition with its absence. In general, laboratory works inducing accountability pressures found increased cognitive effort devoted to the judgment.

The interactive effect of accountability and other audit features have been explored in the literature. Glover (1997) examined the dilution effect with auditor facing both accountability (justification) and another pressure factor of audit – time pressure, and found no significant impact of accountability in the task performance. Analogously, Asare et al. (2000) looked at the joint effect of accountability and time budget in hypotheses testing task. In order to identify the actual cause of fluctuation, auditors introduced with accountability put more effort in hypotheses testing, as indicated by both the extent and the breadth of testing. Moreover, other studies have also documented positive effect of accountability when interacting with other audit review features like complexity of audit task (Tan and Kao 1999), task characteristics (Duh, Chang and Chen, 2006), and knowledge of superior's preferences (Gong, Kim, and Harding, 2014).

Dezoort et al (2006) first examined the effect of incremental increase of accountability. They manipulated four levels of accountability in a materiality judgment task. As the applied accountability pressure moved up (to relatively high levels – justification and

feedback), the amount of time taken to complete the task was found to increase; the variability of judgment decreased; and, auditors became more conservative. More recent studies started to investigate the issue of multiple accountabilities. Bagley (2010) argued that prior research assumes that the auditor is accountable to only one superior, whereas in practice, the auditor is accountable to multiple parties with various preferences. Bagley (2010) used multiple accountability settings in the experiment to examine the combined effect. Results indicate that multiple accountabilities resulted in a negative effect. This finding is prominent considering the recent change in audit environment. The mandated inspection on audits of major firms introduced by government introduced new reviewer / accountor to auditors. It is uncertain whether the multiple accountabilities to internal superiors and to external inspectors could adversely affect audit quality.

Criticism of experimental studies on accountabilities centres on the validity (generalizability) of the results. Firstly, little evidence has been found of professional behaviour in a realistic accountability setting (Gibbins and Newton, 1994). The simplified audit setting and experimental finding may have restricted direct implication for practice. The problem of realism is an embedded issue of the methodology of experiments, which will be discussed in Chapter Five (Section 5.3.1.1). Secondly, due to the variation of accountability being largely overlooked in prior studies, 'the use of varied single accountability treatments … raises questions about the generalizability' of reported effects of accountability (Dezoort et al., 2006, p 374). Thirdly, some argue that absence of accountability does not really exist in audit, which therefore threatens the validity of experiments using anonymous setting. Auditors do not work in a social vacuum so that they are implicitly or explicitly always affected by accountability (Dezoort et al., 2006; Tetlock, 1983).

In conclusion, experimental studies have provided much evidence of the influence of accountability on audit judgment and behaviour. Their results generally indicate an increase in cognitive efforts devoted in judgment. However, issues like multiple accountabilities and incremental increase of accountability remain underexplored. To help address these issues, a fuller understanding of the psychological process of accountability is needed. Unlike audit JDM research that views accountability as an intrinsic pressure factor of audit environment, psychology literature has offered varied explanations of how accountability impacts on judgment and various types of accountability. For instance, a recent study (Messier, Quick and Van der Velde, 2014) looked at how process accountability affects auditors' judgment regarding implementation of accounting

standards. It was revealed that auditors' reliance on prior year treatment is reduced when held accountable for the process of judgment. The following section (Section 2.5.2) gives a fuller discussion of the psychology of accountability.

2.5.2 The psychology of accountability

Accountability is a crucial element of audit environment affecting audit judgment. The previous section (Section 2.5.1) discussed prior research on the issue of accountability in the context audit JDM. Early research viewed audit judgment as a process that could be systematically modelled (Hogarth, 1993). This early modelling was largely influenced by the conventional psychological theories that considered decision makers as isolated individuals (Lerner and Tetlock, 2003). Researchers then recognized the fact that auditors do not make auditing decision in a social vacuum (Buchman, Tetlock, and Reed, 1996). A subordinate (less experienced) auditor is expected to be (and is) accountable to a more experienced superior in audit review interactions. Modern audit practice embedded audit review activities in the routine of audit work. Thus, accountability is an intrinsic component of the audit environment that influences audit judgment.

Audit JDM research in this field is concerned with the relationship between accountability and the quality of judgment and decision-making (Bonner, 2007). Those studies have sought to explore the influence of accountability on auditor's judgment and decision-making (e.g., Johnson and Kaplan, 1991; Lord, 1992; Messier and Quilliam, 1992; Koonce, Anderson, and Merchant, 1993; Tan and Kao, 1999; DeZoort, Harrison, and Taylor, 2006; Gong, Sarah, and Noel, 2014) and treat accountability as a pressure factor arising in the audit review process. As Buchman, Tetlock, and Reed (1996) had argued, most studies in the auditing literature have simply found answers of 'whether accountability matters'.

Accountability has been a popular topic in social psychology. It has been invoked as a solution for almost every problem in social life (Lerner and Tetlock, 1999). Unfortunately, there is no typical or main effect of accountability reported in existing literature that can be easily grasped and applied directly to audit judgment. This subsection is to explore the psychology literature of accountability to enrich the understanding of the cognitive process of accountability and various types of accountability. It finishes with a discussion on plausible link between the effect of accountability and regulatory focus that locates accountability as an intensifier of the effect of regulatory focus orientation.

2.5.2.1 Defining and understanding accountability

In the paper by Lerner and Tetlock (1999), two of the leading researchers in the field of accountability, accountability is referred as 'the implicit or explicit expectation that one may be called on to justify one's belief, feelings and actions to others' (p 255). Taken into the accounting and auditing literature, accountability is in general, defined as 'the pressure to justify one's view to significant others' (Johnston and Kaplan, 1991; Messier and Quilliam, 1992; Koonce et al., 1993; DeZoort et al., 2006).

By definition, accountability is a psychological term, an expectation or pressure perceived from the environment. The person held accountable may or may not actually be asked to provide a justification. For instance, an auditor may receive review notes and be asked to justify the judgment and decision made relating to some part of the work completed rather than necessarily the whole audit work (Bonner, 2007). In other words, accountability does not necessarily give rise to enforcement to provide acceptable justification. It is 'the social psychological link between individual thinkers on the one hand and the social systems to which they belong to on the other' (Tetlock, Skitka, and Boettger, 1989).

Another elemental component of accountability is the audience that the decision maker is held accountable to. It is common that people want to appear good in front of others, and therefore, manipulation of accountability can be implicated with the mere presence of another person around (Lerner and Tetlock, 1999). Many laboratory studies reported increases in cognitive efforts devoted by participants were indeed, carried out under weak manipulations of accountability, i.e., under a situation in which the participants are called to justify views to audiences that 'they have never met before and never expect to meet again' (Lerner and Tetlock, 2003, p 444). These results have proved that accountability leads to more effortful thinking even when individuals are accountable to temporary significant audience.

Laboratory work generally uses weak manipulation of accountability where the concrete consequences of accountability cannot be observed (Lerner and Tetlock, 2003). In a typical setting, the acceptability of one's justification is merely indicated by an approval or disapproval response from the audience. It is true sometimes, that positive or negative consequences might hinge on the acceptability of one's justification, e.g., accountability to powerful authorities, and accountability during a performance evaluation or an inspection. Researchers predict that 'where the acceptability of one's justification carries significant

consequences', there might be more substantial effects resulting from accountability (Lerner and Tetlock, 2003). One possible explanation of the motivational effect of accountability is through its associated consequences such as monetary incentives like keeping or losing the revenues related to a client, and nonmonetary incentives like saving or losing face with a client. It is now mandated that audits of major firms to be monitored by Audit Quality Review Team in the UK and the PCAOB in the US. These inspecting bodies will produce reports on the review of audits of individual firms. This process has expanded the audience to whom auditors need to justify their work. However, such understanding of accountability based on the associated motives like monetary incentives is incomplete interpretation of the accountability relationship. In addition, most typically, accountability does not carry concrete consequences that can be related to such motives.

The accountability relationship in real life is not only complex but often fluid and dynamic (Lerner and Tetlock, 1999).

2.5.2.2 Subtypes of accountability

Accountability is not a unitary phenomenon (Lerner and Tetlock, 1999; 2003). Due to the qualitative differences in the nature of the audience and in the context of accountability (Lerner and Tetlock, 2003, p 435), there are many distinct sub-types of accountability in real-world settings, 'each of which has received empirical attention in its own right' (Lerner and Tetlock, 1999, p 255). Lerner and Tetlock (1999) provided the first review of the psychological literature on accountability and outlined eight distinct subtypes of accountabilities: accountability to an audience with known versus unknown audience views; pre- versus post-decisional accountability; outcome versus process accountability; legitimate versus illegitimate accountability.

2.5.2.2.1 Accountability to audience with known or unknown views

Two subtypes of accountability are related to the audience's view. People are concerned about how they appear in front of others and want to maintain their identities as moral, competent beings. Driven by this motive, they make sure that their act or judgment can be persuasively justified or excused to observer (Lerner and Tetlock, 2003) and to seek approval from the observer (Lerner and Tetlock, 1999).

The simplest way to obtain approval is to agree with the audience. Making a decision that opposes the audience view will lead to resistance and increases the cognitive work to make the decision acceptably justifiable. For this reason, when the audience view is known before a decision is made, individuals are more likely to adopt a coping strategy to choose an option likely to be acceptable to the audience (Buchman et al., 1996). Empirical evidence has proved the adoption of coping strategy among participants when the audience's view is known (e.g., Tetlock et al, 1989). Moreover, with knowledge of audience view, individuals are likely to seek approval from the audience tactically using least cognitive work.

In situations where the audience's view is completely unknown, people do not feel that they are restricted to any prior commitments. Under such condition, people often engage in 'preemptive self-criticism - that is, they think in more self-critical, integratively complex ways in which they consider multiple perspectives on the issue and try to anticipate the objections that reasonable others might raise to positions that they might take' (Lerner and Tetlock, 1999, p 257).

In practice, auditors can acquire knowledge about superiors' (reviewers') preference from previous audit jobs. Audit documentation on previous years' audit may also be a source to learn about the reviewers' preference. In the prior literature, the persuasion framework of audit review (Rich et al., 1997, explained later in this chapter in Section 2.6.4) suggests that preparers may strategically stylize the working-papers to persuade the reviewer about the quality of work performed: Assuming preparers to have some knowledge or assumptions about their superiors' view.

2.5.2.2.2 Pre- versus post-decisional accountability

The timing of accountability is also an important characteristic. Learning of the need to justify the judgment made is post-decisional accountability. Since the decision is already made, the cognitive effort will be devoted to confirmatory thought, attempting to rationalize the judgment already made. For instance, Tetlock and Kim, 1987 has found that participants anchor on initial values and make insufficient adjustment on their estimates when they learn of accountability only after their judgments are made. Similar findings were reported from other studies that learning of accountability only after judgment/choice

was made bolster participants' initial selections (Conlon and Wolf, 1980; Fox and Staw, 1979).

Audit firms use internal audit review as a quality control mechanism and external review by independent monitoring body is made mandatory on some audit jobs. Auditors shall be aware of their accountability before making judgments – pre-decisional accountability. Generally, audit tends to be framed as confirmatory exercise (e.g., to confirm absence of material misstatements).

2.5.2.2.3 Outcome versus process accountability

Simonson and Staw (1992) separated the accountability for outcomes from accountability for process. They proposed that outcome accountability may heighten the justification need and trigger confirmatory thought attempting to rationalize the choice/judgment made. Whereas, the process accountability triggers exploratory thought that require thorough consideration over alternatives. Therefore, it is also important to consider what participants think they are accountable for, either the outcome or the process of the judgment.

Past research suggested an association between accountability and the usage of status quo heuristic in decision-making. People are more likely to stick with the status quo under the impact of accountability. A recent study by Messier, Quick and Vandervelde (2014) reported an opposite effect of process accountability on the propensity to apply status quo. It was found that given prior year's accounting treatment on R&D, auditors held accountable for the process of their judgment were found to be less likely to exhibit status quo heuristic in their judgment on proper treatment of R& D for current year.

2.5.2.2.4 Legitimate versus illegitimate accountability

The legitimacy of accountability has also attracted attentions in the literature. It is suggested that people should respond positively to legitimate authorities rather than illegitimate parties (Lerner and Tetlock, 1999, cited from Tyler, 1997). In audit context, reviewers are usually more senior personnel in the firm who shall be considered as legitimate audience.

The legitimacy of the audience was manipulated in previous laboratory studies, for instance, explaining betting decision to a friend (legitimate party) or a stranger (illegitimate party) and justifying the evaluations of the teacher to a faculty member or another student. Positive effects of accountability were reported when participants are held accountable to legitimate audiences: Individuals made more accurate recall of judgment policies in explaining betting decisions, and those required to justify teachers' evaluations devoted more effort into writing the evaluations[11].

2.5.2.3 Accountability in judgment and decision-making literature

How people cope with accountability is a major concern in prior studies of accountability in judgment and decision-making literature. Among those early studies, some research sought evidence in support of the standpoint that people cope with accountability by 'simply seeking out the most expedient or obviously acceptable position', whereas others suggest that people react to accountability by 'thinking in flexible, multidimensional ways that reduce or even eliminate well-replicated judgmental biases' (Tetlock, Skita, and Boettger, 1989, p 632).

Lerner and Tetlock (1999; 2003) proposed an alternative elucidation. After review of studies on accountability in the literature, they considered two basic hypotheses that:

> (1) 'accountability will attenuate judgment and decision-making biases to the extent that accountability increases cognitive effort', and
>
> (2) 'accountability will amplify the dominant responses to judgment and decision-making problems – thereby attenuating bias on easy problems and amplify bias on difficult problems'. (Lerner and Tetlock, 2003, p 432)

Several theories in the psychological literature predict that accountability will function as a motive that leads to increased cognitive effort (Lerner and Tetlock, 1999; Tetlock, 1992; 1985). Increasing the cognitive effort in decision-making can often significantly decrease the errors in judgment and decision-making. For instance, consider the question: On passing the runner ranking 2nd in the race, what is your ranking? Most people would have answered 1st or the winner immediately. However, taking a second thought, it can be easily

[11] Results from these two studies did not find difference between responses made under legitimate and illegitimate audience manipulations. Some has questioned the sufficiency of the legitimate manipulation and some suggest other issues like expertise and power might have driven the result.

figured out that passing the 2nd means replace the 2nd, which means still being ranked after the leading runner.

Prior research documented supporting evidence that accountability improves judgment as it increases cognitive effort that makes people think harder. For example, Tetlock and Kim (1987), in a personality prediction task, found accountability potentially lead to a decrease in oversensitivity to the order in which information appears and overconfidence among participants. In an attribution study by Lerner, Goldberg, and Tetlock (1998), individuals were to consider a fictional case of tort. It was reported that individuals' consider more facts under accountability rather than simply make judgment based on their feelings.

Increased cognitive effort can also take form in the judgment process as confirmatory thought or exploratory thought. Basically, confirmatory thought is a process to generate a more acceptable explanation of the judgment made; whereas, exploratory thought is a process to optimize a judgment by analysing the pros and cons of alternatives (Lerner and Tetlock, 2003).

However, thinking harder does not always equate to thinking better (Lerner and Tetlock, 2003). Accountability does not guarantee better judgment. As suggested by the alternative hypothesis on the effect of accountability, the amplified dominant responses function on both biased and unbiased judgments. For instance, past research documented adverse effect of accountability to increase propensity of applying status quo heuristics in judgment (Lerner and Tetlock, 1999; Messier et al., 2014). In other words, effortful thinking does not necessarily promise or result in bias attenuation.

There remains uncertainty whether the effortful thinking as a result of accountability is beneficial to judgment and decision-making. As suggested by Lerner and Tetlock (2003), there are at least two moderators of the effect of accountability – the characteristics of the judgment process, and the characteristics of the judgment task. The process characteristics include factors like whether it is a confirmatory or exploratory judgment. The task characteristics include factors like the type of task and potential source of judgmental errors.

To recap, increased cognitive effort sometimes attenuates biases in judgment but sometimes it amplifies biases in judgment. In general, these results can be explained as an enhanced motivational effect as a result of accountability, which either increases the

cognitive effort devoted by decision maker, or amplifies their dominant responses. Therefore, accountability acts as an amplifier of motivational effects.

2.5.2.4 General discussion – accountability and regulatory focus / fit

Previous studies have offered large amount of evidence suggesting positive effect of accountability on audit judgments (as discussed earlier in this section, Subsection 2.5.1). Most of them consider accountability as a unique pressure factor in the audit environment. In psychology literature, it is recognized that accountability is not a unitary phenomenon (Lerner and Tetlock, 1999; 2003). To obtain a better understanding on the cognitive process of accountability, this subchapter has generally explored the psychology of accountability and briefly discussed various effects of the eight distinct subtypes of accountability (Lerner and Tetlock, 1999) in relation to audit judgment.

Different characteristics of accountability (e.g., with known or unknown audience's view; accountable for process or outcome of judgment) have different effects on the cognition of accountability. There is no typical or main effect of accountability reported in existing literature that can be easily grasped and applied to audit JDM studies. Following the elucidation on the cognitive effects of accountability proposed by Lerner and Tetlock (1999; 2003), it has then been broadly concluded that accountability amplifies motivational effects on an individual's judgment and decision-making.

The motivational effects of regulatory focus on decision-making have been discussed earlier in this chapter (Section 1.3). Empirical findings suggested that differences in regulatory foci can be applied to explain differences in human cognitions, behaviours and emotions among people. Hence, it is expected that Regulatory Focus Theory can also help to explain differences in cognitions of accountability.

In prior research, the study by Shah (2003) can be seen as drawing a link between regulatory focus and the issue of accountability. Shah (2003) explored the influence of significant others on one's regulatory focus concerns, which. It is suggested that the psychological presence of significant others may implicitly prime individual's goal commitment and goal pursuit and hence affect our social actions and judgments. Basically, the significant other's expectation creates a motivation force for promotion focused individuals so as to achieve the expectation; and a motivation force for prevention focused

individuals not to fail the expectation. There are two distinct ways of cognitive processing of accountability guided by individuals' regulatory focus. Therefore, it is plausible to expect an interaction between accountability and regulatory focus such that accountability intensifies the effects of regulatory focus orientations.

Furthermore, one fundamental component of regulatory fit is the strengthened engagement in one's goal pursuit that intensifies the motivational effect of regulatory focus orientations (explained earlier in Chapter One, Section 1.4). Hence, accountability and regulatory fit have similar function of self-regulation intensification. This has raised a question in relation to the relationship between accountability and regulatory fit. Is accountability conceived as a specific type of regulatory fit, or is it a source of regulatory fit that certain subtypes of accountability creates experience of fit or misfit? Chapter Four discusses this issue to for some insights for future research.

2.6 Audit Review Process

The review of audit working-papers is a central mechanism for quality control and monitoring the appropriateness of work performed by the field team members (Fargher, Mayorga & Trotman, 2005; Gibbins & Trotman, 2002; Ramsay, 1994; Solomon, 1987). It is perhaps the primary process through which members from different levels of the hierarchical structure of the audit team interact. Prior literature employs various audit tasks to study issues of the review process. For instance, in an analytical procedure, Peecher (1996) examines how preparer's performance is influenced by the reviewer's preference; and in a hypotheses generation task, Yip-Ow and Tan (2000) and Koonce (1992) studies reviewers' judgment when the subordinate suggest a non-error explanation for fluctuation detected.

This section is organized as follow. Subsection 2.6.1 provides an overview of the literature of audit review and briefly explains its function as a quality control mechanism. It also hints at the structured audit approach developed in the audit industry around late 1970s to 1980s. Main findings of descriptive studies in prior literature are covered in Subsection 2.6.2. The last subsection (Subsection 2.6.3) provides a concise discussion of key issues around the audit review mechanism that has been studied in prior experimental studies.

2.6.1 Audit review – a quality control mechanism

Most public accounting firms have their own defined quality review procedures. This quality control review is often referred as audit review, which is generally accepted as the process of superior members of audit teams evaluating the work of subordinate team members (Rich, Soloman and Trotman, 1997). It is designed to 'reduce judgment variance' (Joyce, 1976; Trotman & Yetton, 1985) and in the prior literature generally viewed as an attempt to 'mitigate the effects of basic human information processing limits' (Libby & Trotman, 1993).

A purpose of audit review is to make sure that the audit meets applicable standards and firm policies and procedures (Miller, Fedor, and Ramsay, 2006). Review of the work completed occurs at different levels of the hierarchical structure in the firms at different stages of an audit, from the audit planning stage (Koonce et al., 1995; Solomon, 1987) to the audit opinion formulation stage that includes all analytical review activities like hypothesis generation (Yip-Ow & Tan, 2000; Ismail and Trotman, 1995). Junior auditors

are less experienced and more likely to make mistakes, whilst the labour of the partners and managers is a costly resource and in relatively short supply. For this reason, the superior traditionally perform as a reviewer rather than a preparer to form an objective review of the work by the preparer and to ensure the quality of the audit work (Rich, Solomon & Trotman, 1997). One line in early studies adapts from organizational perspectives and views audit review as a low-cost procedure providing potential benefits for identifying errors and for guiding audits (Biggs, Mock & Watkins, 1988; Rich, Soloman and Trotman, 1997; Bamber, Bamber and Bylinski, 1982).

Many accounting firms had reconstructed their audit work programme toward a more structured audit approach in order 'to implement a consistent audit approach' (Arens and Loebbecke, 1986; McDaniel, 1990) during the last two decades of the 20th century. Under a structured audit approach, procedures are specified in the audit programme, consisting of detailed procedures or checklists in complying with professional standards and regulations. According to the study by McDaniel (1990), structured approach increases audit effectiveness, efficiency, and consistency. It enables control of the effectiveness of audit, i.e., the expected quality of work can be achieved if procedures are conducted 'completely and correctly'; It allows audit to be performed consistently, and desired levels of assurance obtained, by strictly following the structure. In addition, the time required to complete the audit work is reduced on the part needed for the planning and 'allows more time for task execution' (p269). By adopting structured audit approach, superiors can centre their effort on the designing and planning of the procedures in the programme, while audit works such as substantive procedures are conducted by less experienced subordinates. The detailed procedures shall provide sufficient guidance to the subordinates. Hence the quality of work performed by subordinates shall be at expected quality if the work is completed 'completely and correctly' following the planned procedures.

Communications between reviewer and audit staff at lower level are via written notes regarding the working-paper preparation and performance of audit procedures (Rich et al., 1997). The working-papers contain information describing the work performed, methods used, and conclusion drawn by a preparer, all of which are subject to review by a more senior audit team member. Reviewer may ask for additional evidences and explanations in respect of certain judgment and advice on how to improve the documentation.

Some researchers look at this function of audit review as an effective way to provide feedback and training to subordinates (Libby and Luft, 1993; Miller et al., 2006). The audit

review is also considered as procedures to manage audit risk. The nature and extent of review is adjusted respecting various risk factors like client risk (Rich et al., 1997; Asare et al., 2007).

2.6.2 Descriptive studies

Prior studies attested that significant amount of audit time is allocated to review (Bamber and Bylinski, 1987). Regarded as the central quality control mechanism, audit review has attracted much interest in the literature. However, prior literature did not conclude with a standard set of procedures that describes how reviewer conducts a review. In addition, findings from early descriptive studies were sometimes contradictory. Several survey studies suggested that the forms of review vary among firms (e.g., Bamber and Bylinsky, 1982; Milliron and Mock, 1981); whereas studies examining the procedures prescribed in audit firm manuals concluded similar review activities (Roebuck and Trotman, 1992). In fact, due to modern development of technology, there has been increasing employment of alternative forms of audit review in practice, such as electronic review of online working-papers (Brazel, Agoglia & Hatfield, 2004).

Individual reviewer may take different approaches in practice in order to fulfil the review objectives. International Standards of Auditing (ISA 220) requires the reviewer to evaluate 'the significant judgments made' and 'the conclusions reached' in practice (paragraph 38). Researchers define both checking documentation and assessing opinion formation as the primary review objectives (Rich, Solomon and Trotman, 1997; Yip-Ow and Tan, 2000; 2001; etc.) (see Table 2.3 below).

Table 2.3 Objectives of audit review

	Review objectives
Rich, Solomon and Trotman (1997)	Appraisal of the appropriateness of the preparer's opinion Ensure the defensibility of the documentation
Yip-Ow and Tan (2000)	Identify alternatives missed (including explanations, omission, and inconsistencies) Assess preparer's conclusions (i.e., whether adequately supported)
Gibbins and Trotman (2002)	Check documentation Assess opinion formed

Rich, Solomon and Trotman (1997) specified two primary objectives of the review process:

appraisal of the appropriateness of the preparer's opinion and ensuring the defensibility of the documentation. It was suggested that reviewers' judgment requiring 'additional work or follow-up' suggests that they are more concerned with reaching and supporting an appropriate conclusion. Whereas, reviewers' judgment requiring 'better documentation' suggests that they are concerned with discharging professional responsibilities and the defensibility of the documentation. Alternatively, Yip-Ow & Tan (2000) has suggested two objectives more closely related to the various tasks reviewers performed during the review process. They put forward that reviewers are expected to identify 'alternative explanations, omission, or inconsistencies that the preparer may have missed,' and assess 'whether the preparer's conclusions are adequately supported', which therefore suggests two approaches to achieve review objectives: to generate alternatives and to check the adequacy of conclusion and justifications. In a more recent study by Gibbins and Trotman (2002), evidence suggested that preparer's opinion formation was the most important concern of the reviewer.

The audit review is described as 'a sequential, hierarchical, iterative communication process' in Solomon (1987). Ramsay (1994) has described working-paper review as a process 'accomplished by reading the working-paper and noting questions or matters for follow-up or correction on listings commonly called review notes' (p 129). The team members then perform the work in response to the concerns and opinions raised in the review notes. Such documentation is destroyed once the review opinion has been adequately addressed (Roebuck and Trotman, 1992; Payne, Ramsay and Bamber, 2010). Furthermore, the review mechanism makes the reviewer accountable for the audit work (the working-papers and the conclusions reached) at the end of the review process. Reviewers are accountable for the output, not the process of review, indicating documentation of review judgments is not necessity. The value of review notes was noted in Rich, Solomon and Trotman (1997) as a source providing 'natural and externally valid measure of reviewer decision/action selection', which is however, 'under utilized by review process researchers'. A few early studies examined the actual review notes (e.g., Roebuck and Trotman, 1992, and Rich, 1997). Due to the problem with access to actual review notes, researchers often use questionnaires to investigate the process of audit review (Gibbins and Trotman, 2002; Fargher, Mayorga, and Trotman, 2005), which means the 'under utilization' of review notes in audit review studies persists.

Among more recent studies, Gibbins and Trotman (2002) investigated the interpersonal factors in a private sector environment using extensive questionnaires. Their survey study

provided first empirical evidences on a range of features of manager's working-paper review in terms of how these features affect the conduct of review. Fargher, Mayorga and Trotman (2005) also reported inspiring findings on how audit features affect the review. Manager's review effort, for instance, is found to be negatively related to the quality of the work performed by the subordinates, the preparer of the audit work paper. Undue reliance on preparer's work is defined in prior literature as one threat to the quality of objective review (Rich, Solomon and Trotman, 1997; Gibbins and Trotman, 2002). This concern seems to be supported by the revealed negative relationship between the expected quality of preparer's work and the review effort in Fargher et al. (2005). In addition, consistent with previous experimental studies, risk and time pressure is found in Fargher et al. (2005) to have impact on the extent of review, with risk at the level of individual accounts and key client issues found to be more influential, in this context, than the risk at the overall client level.

2.6.3 Experimental studies

The majority of research on the audit review process utilizes experimental setting to acquire knowledge of audit review. Early research compares performances of preparers and reviewers to establish the effectiveness of review on audit judgment. Rich et al. (1997) reviewed early-stage experiments on audit review. They found that most early studies focused on the process gain of the review. Evidence of the efficiency and effectiveness of audit review is manifest in terms of increased number of plausible hypotheses generated (e.g., Ismail & Trotman, 1995), reduced random error (e.g., Trotman, 1985) and improved accuracy of audit judgment (e.g., Trotman & Yetton, 1985)[12]. Libby and Trotman (1993) investigated the effect of the review process on auditors' recall of evidence in a going concern judgment. Results supported the hypothesis that preparers recall evidence that is consistent with their initial judgment whereas reviewers recall more inconsistent evidence when performing review. Another study by Reimers and Fennema (1999) examined the effect of audit review on auditors' sensitivity to the source objectivity of information. In their study, auditors / reviewers received new information from either client or an independent credit agency after working on / reviewing account of uncollectible. To reconsider the initial judgment, preparers were insensitive to source reliability, whereas reviewers were sensitive to the source of the information. Some argue that features in the

[12] Trotman and Yetton (1985) and Trotman (1985) are the first two studies that aimed primarily at the effect of audit review (Libby and Trotman, 1993).

naturally occurring audit environment may somehow diminish some of these process gains documented in the literature (Rich et al., 1997). Following this argument, later studies examined whether specific features of audit environment enhance or diminish the process gains from the review process (Trotman, Tan, and Ang, 2011, p 300).

One of the prominent themes of audit JDM research in the 2000s recognized the multi-person feature of audit and enquired into the interactive aspects of the review (Trotman, Tan and Ang, 2011). Tan and Yip-Ow (2000) posited that exposure to the conclusion drawn by the preparer of the working-papers may unduly affect reviewer judgments, compromising their independence. Turner (2001) investigated the impact of reviewer's preferences. It was argued that prior to the review, preparers might have developed some knowledge about the reviewer's preference from interactions during the conduct of the audit. The anticipated preference was hypothesized to affect the preparers' evidence search strategy. Tested in a task to assess / review the collectability of receivables, auditors were found to presume a conservative preference when facing reviewers with unknown preferences (p 703).

As discussed in a previous section (Subsection 2.5.1), a considerable number of studies have extracted the accountability feature from audit review and tested its effects on audit judgment, including its capacity to mitigate the limitation of human cognition. Many studies regard accountability as a pressure factor in the audit environment. Another pressure factor researched in prior literature is time pressure (i.e., time budget and time deadline pressure). Auditors are under more pressure today. Specifically, the workload of auditors at large public accounting firms has increased dramatically (Agoglia et al., 2010) while the time budgets are becoming increasingly difficult to meet (Gundry and Liyanarachchi, 2007). Empirical evidence suggested that time pressures adversely impact the quality of audits (McDaniel, 1990) that potentially lead to certain reduced audit quality behaviours (Gundry and Liyanarachchi, 2007), and such pressure might compromise the effectiveness of review (Gibbins and Trotman, 2002). McDaniel (1990) developed an experimental task in the context of a test of details of inventory to test the effect of time pressure. The results from McDaniel (1990) suggested unfavourable effect of high time pressure that reduces processing accuracy. Braun (2000) using a modification of McDaniel's (1990) experiment found that under time pressure auditors devoted their attention to the dominant task while seriously neglecting subsidiary tasks. Studies using survey methods also evidenced adverse effect of time pressure (Otley and Pierce, 1996; Soobaroyen and Chengabroyan 2006; Gundry and Liyanarachchi, 2007). For instance,

Gundry and Liyanarachchi (2007) reported based on questionnaires that under time budget pressure, auditors may engage in behaviours like 'premature sign-off' of audit procedure and accepting weak client explanation that reduce the quality of audit. As a quality control mechanism, review is to uncover reduced audit quality behaviour and to ensure the quality of audit (Gundry and Liyanarachchi, 2007). Meanwhile, reviewers' judgment might also be impacted by time pressure, which potentially reduces the effectiveness of review. Bamber and Bylinsky (1987) enquired into this issue and found no influence of time pressure on the amount of time managers devoted to the review.

The following subsections review prior literature of features of audit review including justification and inherited opinion (in Subsection 2.6.3.1), various forms of review (in Subsection 2.6.3.2), auditors' experience (Subsection 2.6.3.3), as well as reviewers' feedback (in Subsection 2.6.3.4), and concludes with a brief discussion of prior experimental studies (in Subsection 2.6.3.5).

2.6.3.1 Justification and inherited opinion

Justification is a crucial element of the review process. Reviewers refer to justifications documented in the working-paper when assessing the appropriateness of judgment made. Koonce et al. (1995) investigate whether auditors' justification is influenced by the audit review. Examined in an audit-planning context, their results indicated that anticipation of audit review increases the quantity of justification. Auditors expecting a subsequent review documented more justifications. In addition, the quantity of justification was also found to be affected by the information / evidence received. Auditors who had received inconsistent or no evidence gave more justification than those receiving corroborating evidence.

Defined as 'the act of providing evidence to support one's judgment or decisions' (Peecher, 1996, p 126), justification influence both preparers' (the justifier) and reviewers' (the justifiee) judgment. On the justifier's side, Peecher (1996) posited that preparer's justification is determined by a justification goal followed by strategic search for and evaluating information (p 126). Adopting the perspective of mental representation, Peecher (1996) proposed that auditors selectively seek and weight evidence to support their pursuit of justification goal, which is to some extent, influenced by auditor's anticipation of the justifiee's (e.g., reviewer's) preferences. Many studies regard the requirement of provide a justification as a pressure feature (i.e., accountability) of the audit review process (see

Section 2.5.1 for review of literature on accountability studies in audit JDM).

On the justifiee's side, it has been recognized by both researchers and audit practitioners that due to the impact of preparers' judgment on reviewers' information processing, there is benefit in having reviewers form opinions independent of preparer justifications (Asare and Wright, 2008; Tan and Shankar, 2010). Yip-Ow and Tan (2000) enquired into the possibility that preparers' justification may impair review effectiveness by examining the differences between auditor's likelihood assessment before and after reading preparers' justification. Auditors were found less likely to generate alternative hypotheses after reading the preparer's justification suggesting a non-error explanation (Yip-Ow and Tan, 2000). The results suggested that preparers' justifications might unduly affect reviewers' judgments as an inherited opinion. Asare and Wright (2008) provided evidence that justification memo might undermine the effectiveness of review in certain conditions. In their experiment, auditors were required to detect inaccurate conclusion, on the cause of an unexpected fluctuation, in preparers' justification memo listing a set of hypotheses that include or exclude the correct cause. It was observed that auditors receiving a justification memo including testing of the actual correct cause in the case were less effective to arrive at a correct conclusion. Agoglia, Kida and Hanno (2003) tested for the effects of different formats of the justification memo on audit judgments[13]. Results from their experiment involving a likelihood assessment task in respect of a client's control environment, indicated that the memo format affects the judgments and documentation of reviewers (as well as the preparers). The format of memos that offers a balanced presentation of both important supporting and non-supporting evidence in components of the judgment was found to have significant impact on reviewers' likelihood assessment. Other aspects of justification such as the structure of the memo (Tan and Yip-Ow, 2001), anticipation of persuasion attempts (Tan and Trotman, 2003) and strength of justification memo (Tan and Shankar, 2010) were also reported to influence reviewers' judgment.

Inspired by the persuasion framework, of Rich, Trotman and Solomon (1997), an increasing volume of research started to examine the effects of preparers' attempts to influence reviewers' judgment by stylizing the justification (Tan & Yip-Ow, 2000; Yip-Ow & Tan, 2001; Tan and Trotman, 2003). The prior research literature on persuasion attempts

[13] Three formats of memos were applied in their experiment: supporting memo – to provide supporting evidence of the judgment; balanced memo – to provide important supporting and non-supporting evidence of the judgment; component memo – to summarize key evidence on a series of components of the judgment.

in audit review involving the format of auditors' justifications will be discussed in Section 2.6.4.

2.6.3.2 Forms of review

It has been presumed that technological advancement has brought changes to the audit environment and alternative methods of reviews are available (Brazel, Agoglia, and Hatfield, 2004; Agoglia, Hatfield and Brazel, 2009). For example, electronic review may be a solution for situations when it is inconvenient for reviewers to travel to the client's premises to review team's field work. Electronic working-papers and the use of emails enable auditors to communicate online (Agoglia, Brazel, Hatfield and Jackson, 2010) and provide records and traces in the system for reviewers to check details of preparers' performance (illustrative information regarding manager's working-paper review was gathered from pre-experimental fieldwork, which will be reported later in this thesis in Chapter Three, Section 3.4.2). Brazel et al. (2004) surveyed on practitioners regarding the methods of review utilized in practice and concluded with two most commonly used forms of reviews: electronic review (i.e., review via online working-paper) and face-to-face review (i.e., preparers confront reviewers). Electronic review has potential advantage in remoteness and improved efficiency, however, 'the often rich and detailed interactions between reviewer and preparer may be lost' (Brazel et al., 2004, p 952).

Agoglia and colleagues criticized the fact that prior literature typically examined auditors' performance under expectation of review or no review. In addition, auditors are often aware of how superiors will review their work. Therefore, a better knowledge of how alternative forms of review affect the substance of audit review was needed. Agoglia and his colleagues sought to fill in this gap and carried out a series of studies to explore the issue of alternative forms of review (Brazel et al., 2004; Agoglia et al., 2009; and Agoglia et al., 2010). Brazel et al. (2004) compared the effects of electronic versus face-to-face reviews on preparers' performance. It was witnessed that auditors anticipated themselves being less accountable in electronic review than in face-to-face review, which therefore suggested a relationship between different forms of review and auditors' perceived levels of accountability (Agoglia et al., 2009). In addition, Brazel et al. (2004) documented evidence that anticipations of different forms of reviews affect the efficiency (i.e., amount of time spent on review) and the effectiveness of preparers' judgment, measured by appropriateness of evidence and conclusions documented as well as quality of judgment

compared with experts'. Their later study, Agoglia, Hatfield and Brazel (2009), investigated how different forms of reviews impact reviewers' judgment, in terms of their ability to assess the quality of working-papers. Agoglia et al. (2009) employed real practitioners and manipulated forms of reviews in a task of preliminary going concern evaluation. Seniors acting in the role of preparers were matched with audit managers acting in the role of reviewers. Reviewers' judgments of face-to-face review were found to be of higher quality. Results also indicated that preparers in electronic review produced working-papers with lower quality than those in face-to-face review. The findings of Agoglia et al. (2009) manifested positive impacts of face-to-face review on effectiveness of audit judgment, whereas Brazel et al. (2004) suggested advantages of electronic review in improving efficiency of review. In a more recent study (Agoglia et al. 2010), their study had been extended to enquire into reviewers' choice of review format. It was hypothesized that the risk of misstatement and workload pressure affect the choice of alternative review formats. High workload pressure shall increase the likelihood of utilizing electronic review, whereas high risk of misstatement shall increase the demand of face-to-face communications in review. The results suggested that face-to-face review is preferable regardless of workload pressure when risk of misstatement is high; and that electronic review is more likely to be used when risk is low.

Payne, Ramsay and Bamber (2010) looked into another form of review, real-time interactive review. From their discussion with practitioners, it was suggested that review notes are prepared in advance in other forms of review (Payne et al., 2010, p 208). However in real-time interactive review, preparers do not have time to get ready for review interactions and prepare review notes prior to the review. Payne et al. (2010) investigated the effect of real-time interactive review on auditors' performance in analytical procedures. Due to the lack of review notes, preparers are under more pressure. Real-time review was found to be associated with a focus on cognitively demanding, conclusion-oriented audit procedure. The results of their study indicated that real-time review increases the efficiency and potentially the effectiveness of audit.

2.6.3.3 Experience

Auditors' experience is often regarded as an indicator of the level of expertise of auditors. For instance, Low (2004) found that industry specialized knowledge improves audit judgment in risk assessment and auditors' planning decisions. Some studies investigate the

effect of reviewers' experiences on potential process gains of review (Ramsay, 1994; Bamber and Ramsay, 1997; Harding and Trotman, 1997; Messier, Owhoso and Rakovski, 2008). Ramsay (1994) suggested that 'experience and expertise result in superior performance in tasks structured to take advantage of the conceptual knowledge representation of experts' (p134). Ramsay (1994) examined the differences between seniors' and managers' review of working-papers. It was revealed that seniors are better at detecting mechanical errors, whereas managers are better at detecting conceptual errors. Following the argument asserted by Ramsay (1994), Bamber and Ramsay (1997) examined the effect of levels of experience at different stages of audit review. It was revealed that by having both managers and seniors to perform specialized reviews as well as all-encompassing reviews, the combined reviews involving both parties were more effective than either party's specialized reviews. The above studies mainly focused on auditors' experience respecting audit procedures.

Owhoso, Messier and Lynch (2002) looked at the effect of industry specialized experience on auditors' error detection in the review process. Depending on the specialisation of auditors' experience, differences were found between seniors and audit managers in terms of identification of mechanical and conceptual errors. Predominantly focusing on the audit review context, a few studies also explore the issue of experience in performing review. For instance, auditors might have acquired knowledge about the preparers of the working-papers from their past experience of work. Such experience may affect their judgment in the review. Asare and McDaniel (1996), for example, looked at reviewers' familiarity with the preparer and task complexity on the effectiveness of the review. Tan and Jamal (2001) examined the impact of reviewers' past experience with the preparers on their assessments of the quality of work conducted. Their results indicated that preparers with better performance in the past received better evaluations from reviewers. Additionally, building on past experience of performing review, auditors also developed skill in assessing preparers' work such as the ability to predict choices made by other auditors (Jamal and Tan, 2001).

2.6.3.4 Feedback

Auditors see review activities as opportunities to persuade superiors about the quality of their performance (Rich et al., 1997). With the incentive to promote oneself in the firm, performance feedback is highly appreciated by the preparers. Reviews traditionally

respond to preparers in the format of formal review notes or in more interactive formats, giving direct feedback fact-to-face. Prior literature primarily focused on the accountability effect of feedback, which has been considered as a high level of accountability pressure in the review context (Dezoort et al., 2006).

Additionally, a number of research suggested that audit firms utilize the audit review process as a coaching tool for inexperienced auditors. Reviewers assess and comment on the work performed by preparers. Feedback to preparers includes comments and review opinions. It facilitates sharing of experience in audit teams and becomes a source for less experienced auditors to gain knowledge. Bonner and Walker (1994) suggested that auditors acquire knowledge primarily through instruction and experience – practice and feedback. By performing audit tasks and receiving feedback from reviewers, auditors build up their experience. Their experiment investigated the effect of feedback in a ratio analysis setting. Their results revealed that mere feedback on outcome of performance does not contribute to auditors' knowledge building. However, the more knowledgeable explanatory feedback is often not available because it requires more time and more experienced personnel (Bonner and Walker, 1994, p 158). This might lead to practical difficulties for experimental work on this issue.

The extant literature on feedback is fragmented (Andiola, 2014) and little is known about the effectiveness of review as a feedback mechanism (Miller, Fedor and Ramsa, 2006). Such a scarcity has made it difficult to assess the behavioural effects of feedback on auditors (Andiola, 2014). To provide knowledge on feedback in review, Miller, Fedor and Ramsay (2006) carried out a survey study to explore discussion of feedback in the audit team. Matching actual reviewers and preparers who had worked together on an audit engagement immediate before the research, the responses gathered indicated that less experienced auditors are motivated to improve their performance after a discussion with the reviewers on the feedback received. Whilst, an adverse effect was discovered among more experienced preparers that experience diminished performance improvement. A possible explanation by Miller and colleagues of this adverse effect might be due to lack of control of their study (i.e., validity of measurement and consistency of measures among subjects). They then suggested future research to build controlled experiment to consider and control for aspects of review like task complexity and forms and duration of discussion.

2.6.3.5 Summary and discussion

Based on the research performed to date, features of the review context such as justification (Subsection 2.6.3.1), forms of review (Subsection 2.6.3.2), auditors' experience (Subsection 2.6.3.3) and feedback (Subsection 2.6.3.4) are influential factors that affect auditors' performance and judgment in the process of review. Justification requirement affects both judgments by reviewers and preparers. Aspects of justification such as the format and structure of the justification memo and inherited opinions – preparers' conclusions enclosed were also evidenced to have impact on audit judgment in the context of review. Arising from technology advancement, alternative forms of review like electronic review enable auditors to perform review when it is not ideal to travel to the field. Various formats of review were also found to influence review judgment. Auditors' experience has been believed as a possible mitigation of judgmental biases. Its effect in audit review has been explored in prior literature. In general, experience was found to enhance auditors' ability in performing review. Audit review has multi-function and it also serves purpose of internal training in the firms.

2.6.4 The persuasion framework of audit review process

Solomon (1987) noted the significance of multi-person feature of audit and postulated that 'audit review provides the structure for audit team members' formal interaction' (p 3). Picking up the interactive feature of audit review, Rich, Solomon and Trotman (1997) adopted a persuasion perspective to analyse how preparers anticipate reviewer's preference and strategically 'style' the documents to persuade the reviewer.

There are various ways that preparers' work may influence the reviewer's judgment. Preparers can influence 'what and how audit evidence is gathered', interpret what the audit evidence means, select what and what not to document, determine how and what is documented will be framed and sets the working-paper format' (p482). Rich and colleagues proposed that the preparers have the incentives – e.g., enhancing career prospects, to persuade the reviewers about the quality of their work and the validity of their conclusions. Preparers are expected to perform work appropriately and efficiently (Rich et al., 1997, p 494). Hence, each review engagement might be treated by the preparers of the working-paper as an opportunity to create positive impressions and to promote their reputation within the firm. Driven by such motives, preparers may attempt to persuade reviewer by strategic 'stylization' of the work-paper to fit the preference of the reviewer.

Rich et al. (1997) outlined five interrelate incidences where preparer could seek to stylize their working-paper. Firstly, preparers conduct audit work to gather evidence, thus, they can choose what and how evidence is gathered (p 492). In practice, details like sources to obtain evidence are predetermined at the audit planning stage (see Section 2.6.4.1). The audit work programme might have inhibited preparers' influence in evidence gathering, however, situations when unexpected evidence is encountered create opportunities for preparers to stylize. Secondly, preparer provides an initial interpretation of evidence that may be utilized as a vehicle for stylization (p 493). Rich et al. (1997) provided an example of such incidence that, driven by self-interests, preparers may decide not to expand the scope of testing on detection errors in testing assertion with low risk and justify the decision by claiming the sample as non-representative of the population. Such incidence was suggested to be more likely if time budget is tight. Thirdly, while building up the documentation, preparers decide on the evidential content of the working-paper. The preparer may choose to avoid documenting evidence that requires additional work to corroborate. Fourthly, the order of information to be presented in the working-paper is initially set by preparers. Studies applying the belief-adjustment model (Hogarth and Einhorn, 1992) evidenced that the order of information presented affect recipient's judgment. Therefore, preparers may purposely present information in certain order to bias reviewer's judgment. Fifthly, prepares also determine the format of working-paper, which can be tailored to fit with reviewer's preference. Rich and colleagues argued that attributes of working-paper like the organization and neatness affect the perceived persuasiveness of conclusions made.

On the reviewers' side, Rich et al. (1997) postulated that the type and extent of reviewer activities is affected by stylized working-papers in a way that the relative emphasis of working-papers guides reviewer's effort (p 495). In situations that extensive work has been conducted by a highly credible preparer with evidence gathered supporting the preparer's opinion formed, it is less likely that the reviewer will question the appropriateness of the opinion but more likely that the reviewer will focus more on the documentation to ensure that audit tests performed and evidence gathered in supporting of the opinion are objectively and completely documented. In addition, 'the type and extent of reviewer behaviours are also likely to be functions of the reviewer's perceptions of and reactions to potential preparer strategic behaviours' (p 495). Rich et al. (1997) assume that reviewers are aware of the fact that preparers are trying to persuade them about the quality of their work. Hence, reviewers will make judgments in coping with preparer's persuasive behaviour. Tan and Yip-Ow (2000) reported supporting evidence that reviewers are

sensitive to stylization attempts by preparers. Moreover, reviewers acquire persuasion knowledge from their previous experience and thus, become capable of tactically coping with preparers' attempts. Such ability of coping improves with persuasion knowledge increases.

Since audit review is a sequential and iterative process, reviewers are not the final recipients of the persuasive working-paper messages. During the review process, the working-paper is improved and amended as requested by the reviewer. Reviewers also become responsible for the working-papers then passed on for a higher level review. That is, reviewers turn out to be preparers in the next level of review. Thus, they 'effectively become the co-composers of the persuasive working-paper messages' (Rich et al., 1997, p 498) and attempt to persuade higher-level reviewer about the quality of the work. In addition, they may actively seek to influence the preparers at early stage of the audit, e.g., preliminary planning of audit. Reviewers can influence details and boundaries on audit procedures during the planning (see Section 2.6.3.1 for more details) that sequentially impact on preparers' evidence search and judgment indirectly, or more directly, condition preparers' performance by providing guidance and support in the course of work.

Another theoretical framework adopted by studies in the audit review context is the interpersonal model of manager's audit review by Gibbins and Trotman (2002). Focusing on the manager's conduct of review, this model incorporates more contextual features. It is suggested that manager's review of the audit file is influenced by the manager's expectation about other parties within the interpersonal context (i.e., the client, the preparer, and the partner) and the manager's own approach and circumstances.

The model is built upon two fundamental properties of audit work-paper review: the interpersonal setting and the expectations in the work-paper review. The interpersonal process of audit review is described as an information flow up and down the hierarchy involving the file preparer, the audit manager, and the engagement partner. The audit file (working-papers) is initially developed and prepared by the audit team staffs, which is then reviewed by the manager and correspondingly adjusted. After being modified accordingly to meet the manager's expectation, the audit file is passed to the partner for completion and to support the formation of audit opinion. By placing the audit manager at the centre of the information flow, Gibbins and Trotman (2002) also identified several interpersonal interactions during the review process including continuous interactions between the parties through which each formed expectations of the others; the process of manager

providing advice/guidance to the preparer; manager's review of work-papers; and, the partner's review of audit files. In addition to interpersonal interactions, Gibbins & Trotman (2002) suggest that expectations play an important role in this information flow. Adopting Rich et al. (1997)'s framework, they proposed that each party forms expectations about the other parties prior to the interactions. Preparers consider the working-paper review as a means to demonstrate the quality of their work (Fargher, Mayorga, and Trotman, 2005), and based on their expectation on individual manager's preference, they behave differently for different managers (Gibbins and Trotman, 2002, p 417). Managers, based on their experience of the preparer and the client, form their own expectations when they approach the review. Managers also prepare the audit file for review based on their expectation of the partner.

Gibbins and Trotman (2002)'s model is a further development of Rich et al. (1997)'s persuasion framework, which helps deal with the complexity of the interpersonal persuasion by centring on the managers' working-paper review, interpreting and compressing various influences from other parties into managers' expectations. The model has five components of manager's working-paper review surrounding the manager (p 418): Manager's expectations about the client (e.g., knowledge about the client's risk), the preparer (e.g., competence) and the partner (review approach and preferences), together with manager's own approach and circumstances, were proposed to impact on the last component, the manager's conduct of working-paper review. It was suggested for future studies that interpersonal features had been largely overlooked in prior literature, which are of high importance to audit research. A more recent application of the model in public sector environment also supported this viewpoint (Fargher, Mayorga and Trotman, 2005).

In conclusion, Rich et al.'s (1997) framework demonstrated an interactive relationship between preparers and the reviewers; that each party make persuasive attempts to seek influence on the other party's judgment. Early studies primarily looked at audit review on the basis of individual auditors. Aspects from review interactions such as auditors' incentives to serve self-interests, their anticipation of superiors' preferences, and persuasion attempts from subordinates might potentially affect auditors' judgments. Gibbins and Trotman (2002)'s development on this persuasion framework offered an important illustration of how the analysis of persuasion network can be targeted on one party in the review interactions with influences from other parties translated as perceived expectations on the target party.

2.7 Summary and discussion

This chapter has generally reviewed prior literature of audit JDM research. Influenced by decision-making science in psychology literature, audit research recognized the fact that auditors do not always act rationally and their judgment could be influenced by heuristics and biases. Early-stage research borrowed methods and design from psychology studies and attempted to replicate the findings in audit context. Later studies examined whether audit specific features (e.g., accountability and auditors' experiences) help reduce the impact of biases on audit judgment. Much has reported supporting evidence but merely found proof that accountability matters in audit judgment. The insights obtained are limited as there lacks a proper understanding how the underpinning cognitive process of human heuristics and biases interacts with features of audit context. The psychology of accountability has been discussed (Section 2.5.2). Auditors do not work in a social vacuum so that they are implicitly or explicitly always affected by accountability. Following Enron's collapse, emphasis on the importance of quality control of audit was heightened. The professional bodies have encouraged frequent and timely communication between audit team members in practice (ISA 315), which can be facilitated via the process review (Wu, 2012). As a result of internal review, the preparers of the audit work are made more accountable for the judgments they make. The accountability feature of review is integral to audit work routines.

A considerable amount of research has enquired into audit review process. Much has focused on the requirement that auditors' work is subject to review by more senior, and usually more experienced, auditors, and much of it centred on accountability within the review environment and sought to examine how such pressure affects auditors' performance in various audit tasks. Some research adopted a multi-person perspective that sees review as an interpersonal interaction between auditors. The persuasion framework of audit review (Rich et al., 1997) demonstrated that auditors make judgments in a persuasion network that various parties have incentives to persuade others about the quality of work performed and conclusion reached. The framework suggested that the audit review process could be best understood as a set of persuasion interactions between preparers of the audit work and reviewers.

In conclusion, both accountability and persuasion attempts are inevitable feature of audit review. Auditors do not work in a social vacuum. Therefore, it is unlikely that accountability is at absent. Additionally, the design of review process is to utilize more

experienced audit labour to review work performed by less experienced auditors, and on that basis, form opinions upon working-papers reviewed and approved. That means every audit team member has opportunities to stylize the working-paper to convey their persuasion message.

With the importance of internal and external review heightened in recent audit reform, all audit judgments are under the impact of accountability and persuasion from other parties. Due to the lack of descriptive studies of the audit review process, we lack a thorough and update descriptive study of modern audit review in practice. Yet it is critical for experimental studies that they make reliable assumptions that draw from real practice. Efforts have been made in this thesis to bridge this gap. Pre-experimental qualitative studies were carried out to confirm details of audit review process in modern practice and to get a better background knowledge to support the design of experiments.

Data gathered from the pre-experimental interviews and observations regarding the purposes / objectives of review and time pressure in modern practice will be reported in next chapter (Chapter Three).

Chapter 3: Pre-experimental study – Insights into modern practice of audit review

3.1 Introduction

A large number of research studies in the prior literature are experimental in nature and grounded on various assumptions about the real practice, yet background descriptive research study evidence about the practice of modern audit review, to support experimental work, is thin. (See the review of prior literature of audit review in Chapter Two (Section 2.6).) Pre-experimental studies have been conducted in this thesis, including interviews with three audit managers and one audit director (a position similar to senior audit manager or salary partner in the firm), and observation of the working of an on-site audit team. The research methodology of the pre-experimental interviews and observations will be explained later in the research methodology chapter in this thesis (Chapter Five). The purpose of the pre-experimental studies is to confirm that the understanding about audit review obtained from prior literature remains valid and to get updated knowledge on modern audit and audit review practice to serve the contextual background of the experiments. It is also to confirm details about environmental issues such as time pressure, accountability, regulations, and the electronic system of audit in place in practice, as descriptions of such these issues are often neglected in the literature.

This chapter reports data gathered from the pre-experimental studies, which is organised as follow: Section 3.2 puts together information gathered from interviews and observations in relation to the operation of audit team and reviews activities within its hierarchical structure. Section 3.3 summarise the descriptive data in respect of audit and the audit review process obtained from interviews with experienced 'reviewers' (mainly audit managers) during the field work. To provide an overview of the fluid and dynamic practice of internal audit review, a diagram is constructed to illustrate audit procedures and review activities at various stages. More in-depth inquiry was made to learn about the practice of audit working-paper review. Data gathered from observations of audit work programme completion and manager's working-paper review is presented in Section 3.4. Several issues of audit review studied in prior experimental studies were discussed with practitioners. Information gathered is summarized in Section 3.5, before concluding this chapter in Section 3.6.

3.2 The audit team and the iterative working-paper review

Consecutive reviews are carried out within the audit firm. Members from different levels along the hierarchical structure are brought together to form a team for an audit job. Team members are not fixed so that auditors can work with different team members on different audit jobs. By referring to the schedule of individual auditors and the audit job arrangement, auditors are assigned depending on their availability. An audit team is usually composed of an engagement partner, an audit manager, a few seniors and several junior auditors. The number of team members often depends on the size of the job. For instance, for a big client, significantly more staffs are demanded in order to complete the large amount of substantive test within time budget.

One or a few senior auditors usually take charge of the audit field work and perform audit procedures that are technically more difficult. Junior auditors generally work as assistants who perform substantive procedures that require less skills and experience. One important responsibility of the seniors is to review the work by juniors, to make sure that all procedures planned have been performed and there are no technical errors (e.g., calculating mistakes) in the work completed. The review by seniors is described in the literature as a detailed and comprehensive review with emphasis on technical accuracy and completeness in advance of the manager's general review (Ramsay, 1994; Owhoso, Messier and Lynch, 2002).

Audit managers usually join the field work at late phase of the field work, who sometimes works on multiple audits at the same time. They perform a 'general' review or 'highlight' review emphasizing on the adequacy of the overall audit work performed (Ramsay, 1994, p 129). Their review is more concerned with issues including whether additional work is necessary to strength the confidence obtained in relation to certain figures in the client's account, and whether more work shall be follow-up in respect of concerns raised from the field work performed (e.g., unexpected fluctuations detected not anticipated during the planning of the audit). The engagement partner performs a higher-level review after the manager has completed all review work and proposed an audit opinion to be issued. The partner's review is more general, with emphasis on whether sufficient work has been performed in support of the audit opinion. Due to the increasing pressure arising from external inspection, the engagement partner will also check the overall work performed to assure the defensibility of the opinion issued. Some firms also undergo an extra stage of quality control, the engagement quality review, by a partner who is independent of the

audit.

It is vital to recognize that audit review is a sequential and iterative process rather than a one-off activity (Rich et al., 1997). The subordinates perform audit procedures and document work completed as well as conclusions reached based on evidence obtained in the working-papers. The superiors then review the working-papers and give review opinions either to approve the working-papers and the conclusions reached or to request follow-up work (e.g., to perform additional audit procedures, modification of conclusions, more details to be documented). Subordinates who prepare the working-papers then perform work accordingly in response to the review opinion and submit the working-papers for another review. This process is repeated until the superior becomes satisfied with the documentation and conclusions.

3.3 The process - modern audit practice and internal review procedures

Experienced practitioners have offered general descriptions of audit review process during the interview. In general, practitioners claim that the audit process does not alter much in recent years, apart from the increasing reliance on the risk focused approach in audit planning. The audit review is an integral part of the audit programme. Together with the audit file building and processing, reviews on the initial decision maker's work by another person occur at various stages throughout the audit process. Information gathered is summarised and presented in this section.

During the audit planning stage, the audit team discusses and decides on the combination and sections of the work programme, The main risks and challenges of each section of section of the audit and how each will be tackled are specified, detailed plans are produced covering such matters as criterion of the sample selection and sources of evidence. The partner performs a final review of the audit planning to ensure that all necessary work has been properly planned and appropriate standards and regulations are complied with, as well as that the appropriate staff and the time is budgeted for the audit job. One of the interviewed audit manager described the audit planning stage as follow:

> 'Initial stage … what we will do is complete planning, to get an understanding of what's happening in the business during the course of the year, what the expected results are and also, get to our risk assessment … where we think the key risk is going to be in the audit. So, we will go through that and assess all those and then we target our work on the area where we think with the highest risk and material misstatement in the audit … then … generates work programmes ... which (are) specified down. The team will then go out and complete these work programmes.'

The electronic audit work programme is generated from the planning stage, specifying all audit procedures planned. It is composed of a number of sections relating to items in the financial statement that the audit team will test during the field work. In order to deliver an efficient audit, the design of the audit work programme concentrates audit attention on those areas where risks are considered to be most significant. The audit work programme is risk focused. Auditors first get to understand the client's business and in particular, what has been happened during the course of the year before starting the audit field work. The partner and managers have a better knowledge of the client and such knowledge is often

passed to other team members during the briefing. The team members then perform risk assessments to identify the areas in the business with the highest risk.

After the generation of audit work programme, an audit team is sent to the client's premises to carry out audit field work. The aim is to gather evidence to aid the auditor's opinion formation at later stage. A senior auditor is usually put in charge of the field work when audit manager is not present. The whole set of planned audit procedure is divided and the fellow team members are assigned to work on different sections. For each section, auditor builds up working-papers documenting tests performed, details of testing (e.g., the list of sampled items), together with the initial conclusion – usually a brief summary of the result of the work performed. These working-papers are listed in related section in the programme and accessible for subsequent review.

The senior-in-charge is typically responsible for ensuring that each team member performs the planned procedures appropriately. Team members will consult with the senior in relation to any problems or concerns raised during the field work for guidance. After team member completes all procedures in a section, the senior-in-charge will typically perform the first review on the working-paper. This review by the senior-in-charge is to make sure the work done meets the required standards, especially in areas that are technically complicated. The senior checks the accuracy of the results obtained (e.g., to recalculate certain figures to ensure that the arithmetic is correct), whether the conclusion reached is adequately supported (e.g., to check the interpretation of the results/evidence obtained). The review opinion of the senior-in-charger is often expressed to the team member orally, without leaving notes in the file. As then requested, field team members will perform additional works and correct mistakes until the in-charger becomes satisfied with the work completed. The senior leaves an electronic signature in completed section to indicate that the work has been reviewed and approved. These approved working-papers are then subject to the review by the manager.

The manager performs a second review on the working-papers generated. The manager's review focuses on the conclusion reached in each section and the audit procedures performed. For each section in the audit programme, the manager assesses whether addition work is required before 'signing off' the section. The manager will check details such as compliance with the sampling criterion and appropriateness of supporting evidence for the conclusions reached. The manger then raises a review opinion, noted in the working-paper, in respect of additional work to follow up or more evidence to be

documented. The field team members respond to this review opinion and resubmit the working-paper for a further round of review. The process iterates until the manager becomes satisfied and 'signs' for the section of work.

An audit manager interviewed has asserted that review is not to re-perform the work done by the subordinates:

> 'I just purely look at the work's been done and assume that the work has been documented in the file has been done.'

It is more the senior-in-charge's responsibility to check the accuracy of the work. Thus, the review by senior tends to be more concerned with the details of the work, whereas the manager performs a more general review of all work performed.

The partner performs an elevated review on the work reviewed and approved by the manager. This review is to ensure that the overall audit work is at appropriate level and all necessary work has been done and documented to support the auditor's conclusion and opinion statement.

> 'So once the partner has been satisfied that all the appropriate work has been done has been reviewed, meets the required level, and all documents' on the file, so that means that they will sign the audit opinion.'

The partner will go through all sections in the audit programme, perform a general review, and assesses the conclusions reached. Partners will also attended to the audit procedures performed and the documentation, much of partner's review work is designed to produce confidence that all necessary work has been done.

One interviewee alluded to a further stage of internal review. There is a internal file review department in the interviewee's firm that sends out a team to 'go around the offices and review stored files to ensure that audit quality is at appropriate level, to make sure that we're not giving incorrect audit opinions'.

All interviewees have mentioned the external review by the Quality Review Team, formerly named as the AIU (Audit Inspection Union) and the QAD (Quality Assurance Directive) during the interviews. One interviewed manager talked about his past

experience in inspection of an audit by the former Quality Review Team:

> '… they will review all of the sections of files; challenge all of the conclusions we've made. And they will assess whether we have met audit quality and whether the audit was lacking in any of the area that would then needs to be addressed. They will then also review the financial statements as well, and if they don't think the financial statements have been prepared appropriately, they would then report those to the Financial Reporting Review Panel and they will then potentially challenge any accounting treatments in the accounts as well.'

Audits on public interest entities were subject to the inspection by AIU. Public interest entities include, for example, all FTSE listed companies, listed companies with more than a billion pounds turnover, and those private companies having a turnover over excess 500 million and big amounts of net long-term debt. The inspectors visit audit firms and pick a sample of audits that meet the criterion for inspection. The Big Four and most large medium firms (like Grant Thornton, BDO, PKF and Baker Tilley, etc.) were all subject to the inspection by AIU as these firms audit most of the public interests entities. There was another external review body, the Quality Assurance Directive, which was in charge of review of all other audits exempt from AIU's inspection. It monitored audits by smaller audit firms.

Early descriptive studies claimed that the review process is fundamentally different from the audit process itself. Audit procedures focus on the validity of financial statement assertions, that is, to uncover financial statement errors; whereas review procedures focus on the adequacy of the audit procedures performed, to uncover auditor errors (Bamber et al., 1988). The review process is thus the 'audit' of the audit work completed at each stage. Nonetheless, in practice, review activities are not clearly distinguished from normal audit procedures and often perceived by practitioners as merely a part of the audit work. Indeed, audit is a fluid and dynamic process that integrates audit procedures and review activities.

A summary of the dynamic process is shown in Figure 3.1 on next page. The general audit process and the review procedures are displayed in separate columns for a clean illustration.

Figure 3.1 A diagram of general audit process and review procedures

	Audit procedures	REVIEWER	Review procedures
Planning stage	Identify the risks and generate the work programme	MANAGER	The combination of the work programme
Field work	Audit team complete the work	SENIOR (IN-CHARGER)	Details of work (including procedures taken and calculations) Technically complicated areas
Opinion Formation	Field team member's initial opinion	SENIOR (IN-CHARGER)	Review opinion Sign off the schedule
	Senior's approved opinion	MANAGER	Review work procedures Review opinion Check documentation Sign off the schedule or Request additional work
	Manager form an opinion	PARTNER	Review opinion Check documentation Sign off the schedule or Request additional work
	Partner form an opinion	REVIEW PARTNER	Review audit opinion

3.4 The professional practice using electronic work programme

To obtain more detailed knowledge in terms of how auditors perform audit procedures using the electronic audit programme, observation method is employed. Following an audit team on-site, the information gleaned is reported in this subsection.

The audit is on a distillery company. The company retains several brand names of whiskeys as well as distilling its own malt. Its business activities include selling products of a few whiskey brands, storing up some good whiskeys for more matured tastes, and producing the company's own whiskey products by mixing various whiskeys to create new tastes. The team had been working at the client's premises for a week by the time of observation and most of the testing and evidence gathering work had been completed. The team was busy putting evidences together to and finishing up the work papers for specific sections of the electronic work programme.

3.4.1 The audit programming system

This firm has recently upgraded its audit programming system. The new system can retrieve past year's audit of a client and link it with current year's audit programme. Offering a neat and detailed schedule outlining, this system provides a clear overview of the whole audit and makes it easy for auditors to refer to last year's audit.

The audit programme is like a folder, inside which is the list of the main sections in this audit, engagement, preliminary tests, substantive tests, quality control and conclusive work. Each folder contains a more detailed list of subsections and links to all documents related. In the engagement section, for example, all contracts related to this audit job are listed, such as the independence announcement and the audit engagement letter. The 'substantive tests' section includes all substantive work on various components of the financial statements like debts, fixed assets and inventory. It also outlines the detailed schedules of the planned procedures of the audit.

The team, on the other hand, was complaining about the over-complication of the new programme. The content of the audit programme is relatively fixed and prohibit skipping of unnecessary sections and tasks, regardless of the nature and size of the client. Once the audit programme is generated, alteration of the schedules is not permitted, inflexible to

change of circumstances. To give an example from the observation, the senior-in-charge made a suggestion to the audit manager about reducing the amount of testing, considering the fact that the client was in a healthy financial situation making a good profit in the financial year. The audit manager also approved this suggestion. Nonetheless, it was not allowed to bypass the planned procedures in the programme because an explicit confirmation conclusive completion is required in respect of each procedure scheduled. Consequently, significant amount of time was spent on completing predetermined yet redundant schedules. In addition, extra work is spent on the initial set up of the database. According to the audit manager, the problem had been common in the firm so that all audits that year were allocated extra budget. Adapting to a new system turns out to be very costly to the firm in the first year.

It was observed that junior auditors rely on last year's audit as guidance when performing substantive tests on internal control. The junior auditor was testing the accuracy of accounting record by tracing a sample of items in the client's accounting system. Referring to last year's audit, the junior had decided to simply test on the same sample tested in last year's audit. The sample tested last year was not a random sample but items with great book value, which represents over 80% of the total value in the account. Since a few sampled items no longer exist in this year's account, the junior were confused and consulted with the in-charger (a senior auditor) of the team. The in-charger then explained to the junior that the purpose of this test is not to test the same items of last year's audit. The junior was advised to test a different sample. In this case, past audit work were considered as specimen. Inexperienced staff believed that it could not go wrong by mere replication of previous year's work. It is prevalent that accounting firms standardize their audit procedures and structure their work programme. This has in a way separated judgmental works from systematic works. Juniors and less experienced staffs can perform detailed tests such as substantive tests. The structured audit programme effectively reduced the amount of supervision work demanded. The workload of senior staffs is reduced whom can then concentrate on audit procedures that require more judgmental skills and experience. However, standardized audit procedures may lead to potential problem of over-reliance on past year's audit and turn into obstacle to the learning and training of less experienced staff.

On completing a schedule, auditor attached/uploaded the spreadsheet onto the corresponding section in the audit programme. The conclusion was copied and attached to the description under the title of the schedule. The system then highlighted this section

signalling that it was completed and ready for review. The team member was also required to 'sign' for the work, indicating the identity of auditor who performed the work and prepared for the documents. This allows the reviewer to direct enquiries to the preparer.

3.4.2 Manager's working-paper review

The manager was not with the team during the field work but came along to review the work about to be completed. Basically, the manger's review covers every part of work completed. Following the structure of the planned work programme, the manager systematically worked through the completed schedules.

The electronic working-paper improves the efficiency of review. The system carries out most of the computation for auditors, which largely reduced the chance of arithmetic mistakes. At the same time, it also leaves records on the system allowing the reviewer to trace and understand the work done by preparers and to assess the adequacy of support for conclusions reached, and any need for further work. Apart from checking the accuracy of computation, it was observed that the manager performed a careful check of the traces / sources of the values computed.

The observed manager reviewed the working-papers and queried the preparer for explanation. Queries the manager made during the observation period include:

- 'Will you explain this schedule to me?'
- 'Have you done … ?'
- 'Where do you put them?'
- 'Have you checked it with … (a person in the client company)?'
- 'Who is this person giving the explanations here?'
- 'Is there any chance we can corroborate this?'

These questions reflect the manager's concern about whether certain procedures had actually been performed, the sources of evidence, as well as the documentation of the work performed and evidence obtained.

It was observed that manager did not note down all review opinions in the review notes. For instance, the manager asked a junior auditor to amend the interpretation of several test

results to improve consistency of the entire section. This review opinion was expressed orally without leaving any written notes.

During the observation, the manager also checked the details of the work completed during the review. When reviewing the working-paper of a sampling test of fixed assets, for instance, the manager first verified appropriate threshold was applied. Referring back to the list of all fixed assets, the manager requested sample items to be highlighted in the list and then went through the whole list to check whether the predetermined threshold had been consistently applied.

As illustrated in Figure 3.1 (p 79), the review occurs at various stages in audit and review procedures are not clearly discriminated from actual audit procedures. Thus, auditors may not realize that they are performing a review but simply following the planned procedures. The team observed considered this review activity as a part of the audit work to justify their work to the manager. Moreover, the team also found it difficult to get fully prepared for the review as different managers have different preferences. For instance, the form of review varies depending on the managers' preferences. Whilst some manager may prefer justifications of audit judgments clearly stated in the working-paper, others may prefer oral explanations. Furthermore, the manager is managing a group of clients. The audit team is formed by referring to budget of the job and availability of auditors so that team members work with different managers on different jobs. This creates opportunities for junior auditors to get to know everyone in the office, as commented by the audit manager.

3.5 Discussion with practitioners

One purpose of the pre-experimental study in this thesis is to confirm whether prior key assumptions in experimental literature are still valid under the effect of modern audit development and recent changes in the audit environment. To serve this purpose, several issues of audit review studied in prior experimental studies were discussed with practitioners during the fieldwork. Information gathered in relation to objectives of review and time budget pressure is summarized in this subsection.

The importance of that judgments made by an auditor is to be reviewed by at least one another to ensure the audit quality was stressed by an interviewed practitioner:

> 'It's (a) judgmental area whereby each assess whether or not each has done work achieved the required level of assurance to be able to sign the audit report of that section.'

It was suggested that due to the risk of 'self-review' in audit that decision-makers often fail to identify the errors in their own judgment. For this reason, all judgments made are reviewed by a different person who is often more senior.

Prior literature has, in general, identified two review objectives – the defensibility of the documents and the appropriateness of the opinion. Practitioners confirmed these two objectives during the interview. Moreover, they claimed that they are equally important when performing an audit review.

> 'They are both (important). You can't get to one without the other. … you need to go through all of the various steps of thinking … has all the work been done that I would expect to be done; does the work that's been completed support the audit opinion, and; how we documented all of the work that we need to document … in order to, for somebody come to review the file and agree that we've done appropriate work to support the audit opinion.'

The review objectives described by the interviewees are summarised in Table 3.4 (on next page).

Table 3.1 Objectives of review from practitioners' view

• Provide necessary guidance and support to audit team members • Assess the appropriateness of the work • Appropriate opinions and judgments made from the evidence collected • Check the documentation of work completed • Internal training purpose

The increasing requirement in the International Auditing Standards on the documentation of audit work was also emphasized by practitioners. It was stated from the interview that work not documented in the file would be regarded as not been performed. Therefore, all works have to be documented on the file, including all of the conclusions made, all of the work completed and all processes. This requirement is incorporated in the review so that reviewers need to make sure all work in support of the audit opinion has been adequately documented. It is also designed to ensure that audit work has been completed at appropriate level. For example, subordinates might have performed testing on a sample of insufficient size or deliberately altered the sampling criterion to diminish the amount of work. Thus, lower level of review (e.g., senior-in-charge review) also checks details like appropriateness of sampling criterion. Review also provides the initial decision-maker necessary guidance and support on the audit. The juniors, lacking in of experience, often need guidance from the seniors during the fieldwork. The audit team may require guidance on some technically complicated issues from experts or more senior level, e.g., the partner, technical partner, and the national technical office of the firm.

Additionally, audit review strengthens auditors' confidence in the quality of audit work in respect of the increasing pressure on auditors from external review bodies. Furthermore, review also facilitates learning and training. The reviewer of the work is often more experienced than the initial decision-maker (the preparer) in general or in the specific area of knowledge. The review activities enable auditors to communicate the rationality of judgments made. Hence, the review is also utilized as a function of the internal training.

The issue of time pressure was discussed with the practitioners.

> 'Very few audit that we do probably come in, in terms of the exact time cost that we though, budget that we would, because there are too many variables there in completing the work. But the work has to get done and if the staff needs additional time, then so be it that the job will be done.'

There is no alternative solution for situations, where a team member fails to finish the work within allocated time units, but to request extra time. The same applies to the review process where additional work or follow-up work takes more time. In order to cover the additional cost to the audit job – the extra time units consumed – auditors have to state the reason for additional time taken to complete the work, so that additional fees could then be claimed from the client.

The interviewees asserted that time pressure hardly influence the audit work and behaviours like truncating a sample in the work reported in prior experimental work does not exist in practice.

> 'I can't imagine any firm could just say 'Right…See how far you can get in a week and … just (make a conclusion) based on whatever you've got. Well, you need to complete all the work that's laid out in the programmes, in the audit file, in order to get the evidence, and that's what the external file review will make sure happen.'

Overall, practitioners' viewpoints suggested that audit review had not changed much in format after recent changes in the audit environment. To enhance the quality of audit work, review also serves as a function of internal training nowadays. In addition, time pressure is one of the environmental features of audit previously reported to adversely affect audit quality. The interviewed practitioners believed that their audit performance in practice was not affected. It could be due to the increasing quality control that removes opportunities of audit judgment to be influenced by time pressure. It is also likely that time pressure is taking effect on the cognitive level of audit judgment, which is at a level not perceived by the auditors themselves.

3.6 Conclusion

This chapter has reported pre-experimental work conducted in this doctoral research. The main purpose is to confirm whether prior key assumptions in experimental studies on audit review are still valid and to enrich knowledge of the contextual background to support the design of the experiments in this thesis.

My own observations and interviews regarding the purposes / objectives of review and time pressure in modern practice, allowed me to come to the view that audit practice has not changed much in broad terms and that the prior research provides an appropriate basis for me to design my experiments. The adverse effect of time pressure evidenced in prior literature was denied by practitioners to have impact on the quality of audit in modern practice.

Chapter 4: Research questions, hypotheses and justifications

4.1 Introduction

In the introduction chapter (Chapter One) Regulatory Focus Theory and Regulatory Fit Theory were introduced and some of the plausible links that can be draw between the regulatory focus, regulatory fit, accountability, and audit judgment briefly discussed. This thesis aims to contribute to the existing literature by first providing evidence supporting the significance of Regulatory Focus Theory and Regulatory Fit Theory for audit judgment. Chapter Two presents a general review of a few main research schemes in the field of audit judgment and decision-making (JDM), e.g., heuristics and biases, accountability and audit review process. It is proposed in this thesis that regulatory focus and regulatory fit may be applied to offer new knowledge to existing literature of audit JDM. Chapter Three has reported findings from the pre-experimental qualitative work conducted in this doctoral research to serve the contextual background of this thesis.

This chapter outlines the research questions of this thesis and specifies the hypotheses developed for testing in the experiments. A summary of all research questions and hypotheses to be tested in experiments is presented (see Table 4.1 on pp. 105-111) at the end of this chapter (in Section 4.6).

4.2 Regulatory focus and sensitivity to accounting information

The first research question of this thesis concerns regulatory focus and sensitivity to accounting information:

> ***RQ 1:*** Do the distinct effects of promotion focus and prevention focus concerning sensitivity to gains (positive outcomes) and losses (negative outcomes) respectively also apply to the processing of accounting information in audit judgment?

The literature of Regulatory Focus Theory suggested that promotion focused individuals are motivated to seek accomplishment, nurturance and growth and are primarily concerned with gains, whereas prevention focused individuals are motivated to seek fulfilment of security needs and primarily concerned with losses. Therefore, people with promotion focus can be expected to be especially interested in, and sensitive to, information that is particularly relevant for advancement and gain-related information that involves the presence and absence of positive outcomes. Whereas people with prevention focus can be expected to be especially interested in, and sensitive to, information that is particularly relevant for security and loss-related information that involves the presence or absence of negative outcomes (Molden, Lee and Higgins, 2008).

This fundamentally distinct effect of promotion focus versus prevention focus can be applied to any types of outcomes, not just the outcome of individuals' own goal pursuit. In the study by Higgins and Tykocinski (1992), people were to recall events they read earlier about the daily life of a hypothetical student. Promotion focused people recalled more events about presence of positive outcome (e.g., finding $20 on the street) and absence of positive outcome (e.g., missing a planned date to watch movies); whereas prevention focused people recalled more events about presence of negative outcome (e.g., being stuck in a crowded subway) and absence of negative outcome (e.g., a hard day of classes being cancelled). Hence, regulatory focus also influences people's sensitivity to information unrelated to their own goal pursuit. The positivity and negativity of outcomes seems to be associated with common sense of 'good things' and 'bad things' in life.

Generally, accounting information in relation to 'good' financial performance may be considered as 'positive'; whereas information in relation to 'bad' financial performance may be considered as 'negative'. It is therefore reasonable to expect regulatory focus to influence an individual's information processing in audit judgment. Promotion focused

people are more sensitive to and tend to be primarily concerned with 'positive' accounting information, e.g., positive profit figures. On the other hand, prevention focused people are more sensitive to and tend to primarily concerned with 'negative' accounting information, e.g., bad debts.

> **H1:** Promotion focused people are more sensitive to and tend to be primarily concerned with 'positive' accounting information; whereas, prevention focused people are more sensitive to and tend to be primarily concerned with 'negative' accounting information.

Information of the same position can be either positive (gain) or negative (loss) framed, e.g., glass half full vs. glass half empty. This can be applied to accounting information, e.g., half paid vs. half not paid. Information concerning amounts attained and the collectability of amounts will tend to be consonant with a promotion focused orientation; whereas information concerning the uncollectability of amounts and the amounts that the organization has so far failed to collect will tend to be consonant with a prevention focused orientation. This difference in sensitivity to 'positive' versus 'negative' accounting information may potentially lead to different judgments.

> **H1a:** Individuals with different regulatory foci will make different judgments as a result of differences in their sensitivities to 'positive' versus 'negative' accounting information.

As discussed in the introductory chapter (Section 1.3.3), prior research consistently suggest potential overreactions to loss and negative outcomes associated with prevention focus, e.g., loss aversion, sunk cost errors and risk seeking behaviour to recover a loss are more characteristic of prevention focus. It is therefore expected that this predominance of prevention focus may also apply to audit judgment.

> **H1b:** Compared with promotion focused individuals, those with a prevention focus are more sensitive to 'negative' accounting information.

4.3 Regulatory fit and persuasiveness of accounting information

In the introductory chapter (Subchapter 1.4) the implications of regulatory fit in decision-making, starting with its value creation function in decision-making, were discussed. The experience of regulatory fit, of strategic means and regulatory focus orientation, when occurring in decision-making, increases decision value; whereas experience of regulatory misfit from disrupting strategic means decreases decision value. Using the Outcome Value Model, Higgins (2002) demonstrated how regulatory fit matters to decision-making in general (as explained in Section 1.4.1 on page 17). Thus, this fundamental effect of regulatory fit can plausibly be expected to apply to audit judgment.

An important component of regulatory fit is a feeling of rightness from fit. Cesario, et al., (2004) describes feelings originating from regulatory fit and misfit as information perceived as relevant by people in making judgments. Prior literature suggested that the feeling of rightness from fit affects whatever a person is evaluating at that moment (e.g., Cesario and Higgins, 2008). Hence, the person can feel right about the information he is processing; an argument or rationale she is reviewing; or a decision he has made, etc. (previously discussed in Chapter One, Section 1.4.2 and Section 1.4.3). Its wide implication in decision-making leads us to propose that it also affects auditors in their information processing and judgment making. Another component of regulatory fit is strength of goal commitment. People who experience fit are increasingly committed in their goal pursuit activities and the motivational effect of their regulatory focus orientation is intensified.

Prior literature has applied regulatory fit to persuasion studies to explore its effects in individuals' processing of advocacy messages (previously discussed in Chapter One, Section 1.4.2). There is documented prior supporting evidence that regulatory fit relates positively to the persuasiveness of messages (Aaker and Lee, 2001; Lee and Aaker, 2004; Aaker and Lee, 2006; Avnet and Higgins, 2006a). This effect of regulatory fit on persuasion is referred as 'persuasion fit' in this thesis.

Regulatory fit has wide implications in decision-making (Cesario, et al., 2008), and the experience of regulatory fit can be induced in various ways. Three induction methods have been explained and discussed in a previous chapter (Section 1.4.3 in Chapter One):

- Message matching – by matching the message framings applied with individuals' regulatory focus orientation;

- Integral fit – by creating an integral experience of fit by applying appropriate strategic means that sustains one's regulatory focus orientation within the task;
- Incidental fit – by creating an incidental sustaining experience of fit by using appropriate strategic means applied in a prior activity independent of the task.

Since there is yet no application of the persuasion fit effect in the field of audit judgment and decision-making studies, the following research question is developed:

> ***RQ2:*** Does the effect of persuasion fit also apply to audit judgment? Is the persuasiveness of accounting information processed improved under persuasion fit induced
>
> (i) by matching message framing with individuals' regulatory foci;
>
> (ii) integrally, when the manner of task performance sustains individuals' regulatory focus; and,
>
> (iii) incidentally, after performing a separate task applying strategic means that fits individuals regulatory focus?

It is hypothesized earlier (H1 on H2) that promotion focused people are more sensitive and tend to be primarily concerned with 'positive' accounting information; whereas prevention focused people are more sensitive and tend to be primarily concerned with 'negative' accounting information. Under regulatory fit, information consistent with people's regulatory focus concern will tend to be more persuasive than other information. Hence, positive accounting information concerning amounts attained and the collectability of amounts should more persuasive to individuals with a promotion focus in audit judgment; whereas negative accounting information concerning the uncollected and uncollectable amounts is more persuasive to individuals with a prevention focus. The difference in the perceived persuasiveness of accounting information processed shall potentially lead to different judgment.

The following two subsections (Subsection 4.3.1 and 4.3.2) set out hypotheses developed for each sub research question of ***RQ2***.

4.3.1 Message matching

> ***RQ2(i):*** Is the persuasiveness of accounting information processed improved under persuasion fit induced by matching message framing with individuals' regulatory foci?

Message matching is one method of inducing regulatory fit – this method induces fit by framing messages in a manner that matches the recipient's regulatory focus orientation. The basic logic is that individuals' conceptualization of gains (positive outcomes) and losses (negative outcomes) are consistent with promotion and prevention focus concerns, respectively. Therefore, gain framed messages constructed using information about benefits, potential gains, and attainment of positive outcomes when matched with promotion focus will give rise to persuasion fit, and the messages involved will tend to be perceived as more persuasive by promotion focused people; whereas loss framed messages constructed using information about detriments, potential losses, and occurrence of negative outcomes when matched with a prevention focus, will give rise to regulatory fit, and the messages involved will tend to be perceived as more persuasive by prevention focused people.

Accounting information in relation to 'good' financial performance is considered as 'positive' in audit judgment; whereas information in relation to 'bad' financial performance is considered as 'negative'. Following this assumption, it is expected that messages consist of 'positive' accounting information – gain-framed information – shall be more persuasive to auditors with promotion focus; whereas messages consist of 'negative' accounting information – loss-framed information – shall be more persuasive to auditors with prevention focus. The following hypotheses concerning the persuasion fit effect induced by message matching are developed, which are tested in Experiment 1 in this thesis:

> **H2:** Message matching improves the persuasiveness of positive accounting information among promotion focused individuals.
>
> **H3:** Message matching improves the persuasiveness of negative accounting information among prevention focused individuals.
>
> **H4:** The effect of persuasion fit created by message matching affects the persuasiveness of accounting information processed and leads to variations in judgments among people.

4.3.2 Integral fit and Incidental fit

RQ2 (ii) & (iii): Is the persuasiveness of accounting information processed improved under persuasion fit induced (ii) integrally, when the manner of task performance

sustains individuals' regulatory focus; and, (iii) incidentally, after performing a separate task applying strategic means that fits individuals regulatory focus?

The other two methods of regulatory fit induction are integral fit – via integral experience of fit originated within the task – and incidental fit – via incidental experience of fit originated from an unrelated task. This thesis also sought to examine the effect of persuasion fit, induced using these two methods, in audit judgment. The following hypotheses concerning the persuasion fit effect induced integrally are developed, which are tested in Experiment 2 in this thesis:

H5: (Integral) Regulatory fit improves the persuasiveness of positive accounting information among promotion focused individuals.

H6: (Integral) Regulatory fit improves the persuasiveness of negative accounting information among prevention focused individuals.

H7: The effect of persuasion fit induced integrally affects the persuasiveness of accounting information processed and leads to variations in judgments among people.

The following hypotheses concerning the persuasion fit effect induced incidentally are developed, which are tested in Experiment 3 in this thesis:

H8: (Incidental) Regulatory fit improves the persuasiveness of positive accounting information among promotion focused individuals.

H9: (Incidental) Regulatory fit improves the persuasiveness of negative accounting information will be improved among prevention focused individuals.

H10: The effect of persuasion fit induced incidentally affects the persuasiveness of accounting information processed and leads to variations in judgments among people.

4.3.3 Regulatory fit and confidence in judgment

Prior literature suggested that the feeling of rightness from regulatory fit can impact on whatever a person is evaluating at that moment, including a decision the person made (e.g.,

Avnet and Higgins, 2006; Cesario and Higgins, 2008) (fuller discussion can be found in Chapter One, Section 1.4.2 and Section 1.4.3, pp. 19-25). Individuals' feeling of rightness in decision / judgment made shall correlate with their confidence in the judgment. Avnet and Higgins (2006) found that the feeling of rightness generated from regulatory fit also increases people's confidence in their reactions in the tasks. The third research question in this thesis concerns the effect of regulatory / persuasion fit on individuals' confidence in their judgment made:

> ***RQ3:*** Does the feeling of rightness from regulatory fit also contribute to auditors' confidence in their judgment?

It is hypothesized that the feeling of rightness from regulatory / persuasion fit will increase individuals' confidence in their judgment.

> **H11:** Individuals are more confident about their judgment when induced with regulatory fit, (i) by message matching; (ii) integrally; and, (iii) incidentally.

This hypothesis is tested in Experiment 1, 2 and 3 in this thesis (reported in Chapter Seven, Eight and Nine, respectively).

4.3.4 Regulatory misfit in persuasion

Prior research in persuasion has generally suggested that regulatory misfit adversely affects persuasion, which would logically impair the persuasiveness of advocacy messages. Koenig, Cesario, Molden, Kosloff, and Higgins (2009) reported findings that suggested an alternative effect of regulatory misfit. That is, under regulatory misfit, individuals take more careful and thorough thinking in processing the messages.

Since the existing literature has not been very explicit about the effect of regulatory misfit on judgment, the forth research question in this thesis (***RQ4***) concerns the effect of regulatory misfit:

> ***RQ4:*** What is the effect of regulatory misfit on promotion and prevention focused individuals in audit judgment?

Koenig et al. (2009) suggested that individuals who experienced misfit engaged themselves in high elaboration processing in considering messages received. The quantity of message

is an easy component to process that requires lower elaboration processing; whereas the quality of messages is a difficult component to process that requires higher elaboration processing – i.e., 'careful and thoughtful consideration of the true merits of the information presented' in the message (Rich et al., 1997). Participants in their study who experiencing regulatory misfit were found more concerned with the quality of messages and less affected by the increase in quantity of messages received.

When individuals take more careful thinking in considering information / messages received, the impact from differences in individuals' regulatory focus can be expected to be lessened. It is hypothesized in Section 4.2 that promotion focused people are more sensitive to and more concerned with 'positive' accounting information; whereas prevention focused people are more sensitive and more concerned with 'negative' accounting information. If both promotion focused and prevention focused people take more careful and thorough thinking in processing those information, the difference in their sensitivities to either 'positive' or 'negative' information will become less influential in judgment then made. Therefore, it can be expected that there will be no association between individuals' judgment and difference in their regulatory foci under regulatory misfit.

Therefore, it is hypothesized that when individuals' regulatory focus is disrupted, there shall be no difference in judgment between people with promotion focus and prevention focus as they both take more careful and thorough thinking in processing the messages.

The following hypothesis (H12) concerning the effect of regulatory misfit is developed, which is tested in Experiment 1, 2 and 3 (reported in Chapter Seven, Eight and Nine, respectively).

> **H12:** Individuals are likely to take more careful thinking in processing the messages when induced with regulatory misfit, and therefore, there will be no difference between judgments by individuals with different regulatory foci.

4.4 Regulatory focus and temporal distance in audit judgment

Audit judgment often requires that judgments be made concerning the current year and the financial health of a business, as in a going concern judgment, based in substantial part on information about its past performance. As part of their analytical review work auditors commonly assemble and analyse the accounting information of previous years, using the past to form expectations for the year under audit. How relevant to the present are the previous years' figures, and how much "weight" should be given to them, as they recede into the past, is a matter of subjective judgement.

There is a time dimension in judgment under uncertainty. Research on temporal discounting has generally concluded that people make trade-offs between value and its temporality (i.e., distance in time of its occurrence). Thus, the relevance of information can be expected to be discounted over its temporal distance. What is going to happen tomorrow is more important than what is going to happen a year later. This can also reasonably be expected to apply to the temporal aspect of accounting information.

Prior literature has largely overlooked temporal discounting on past events. Among scarce studies on regulatory focus and temporal distance (previously discussed in Chapter Four, Section 4.2.2.3 on page 98), empirical findings suggested an association between promotion focus and a relatively high concern for temporally more distant occurrences and situations, and prevention focus with relatively heightened concern for the more proximal occurrences and situations (Pennington and Roese, 2003). Hence, it is reasonable to expect effect of regulatory focus on cognition of temporal distance in judgment.

The fifth research question in this thesis concerns the temporal aspects of past accounting information in audit judgment.

> ***RQ 5:*** How do regulatory focus orientations and the temporal distance of accounting information interact to affect the cognition and use of that information in audit judgment?

It is proposed that the significance of past accounting information in terms of its relevance to judgment about the present and future performance will be affected by the temporal distance of the accounting information.

H13: The effect of temporal distance on individuals' perception of relevance of the accounting information is associated with differences in their regulatory focus orientations.

Since prevention focus is found to be associated with relatively heightened concern for more proximal events; whereas promotion focus is concerned with more temporal events (Pennington and Roese, 2003), it is also hypothesized that

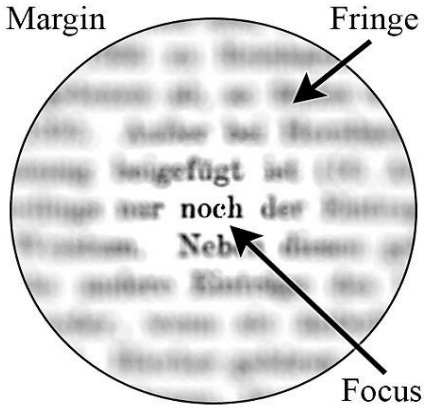
H14: The effect of discount over temporal distance on the relevance of the accounting information is more dominant with prevention focus.

Experiment 4a in this thesis investigates the influence of regulatory focus orientations on the cognition of temporal distance in audit judgment under uncertainty (reported in Chapter Ten).

4.5 Regulatory focus and capacity of information processing

The cognitive resources of an individual are limited (Kahneman, 1973) and so is the amount of attention the individual can devote to information processing. Posner et al., (1980) proposed an analogy between attention and a spotlight. Using this spotlight metaphor, Posner et al., (1980) illustrated attention as illumination on a small portion of 'field of vision', i.e., the entire field that a person is able to see when his eyes are fixed in one position. The illumination can be spread out to a wider area or be narrowly focused on one point. Another similar analogy of attention is the zoom lens on a camera (Eriksen and St. James, 1986) (see Figure 4.1 below). The margin refers to the limits of the visible area and the focus is the illuminated area (of high-resolution) that individuals direct their attention resources to. Surrounding the focus is the fringe that is also visible but faded (low-resolution). Due to the limited capacity of attention, people can only be highly focused on the centre of the illuminated area. The vision becomes less clear away from the focus until completely invisible out of the margin.

Figure 4.1 Zoom lens metaphor of attention



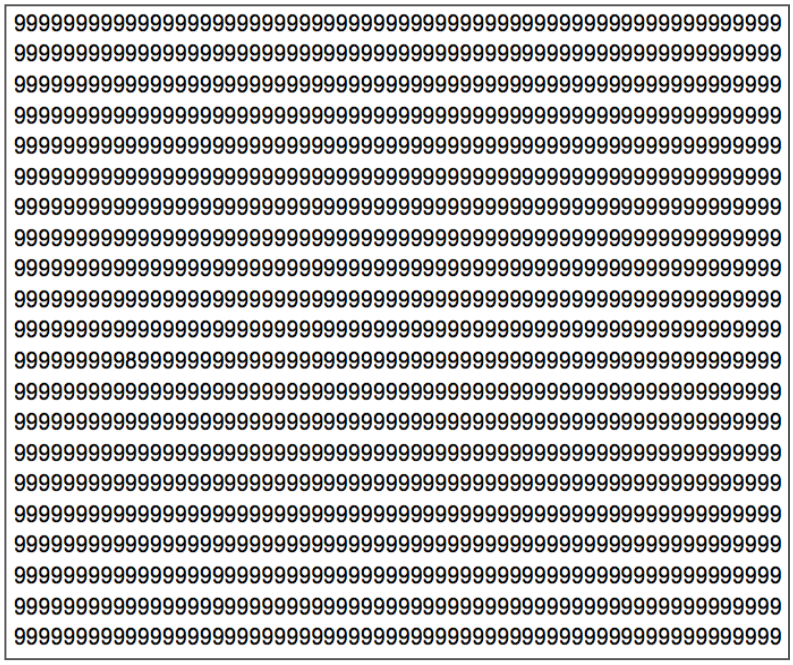
(image from wikipedia.org)

It is expected that the distinct effects of promotion focus versus prevention focus will apply in the directing of attention in information processing. Difference in individuals' regulatory focus orientations will lead to difference in their attention in information processing. Promotion focused people will tend to be wide in their focus and include more items in their processing of information; whereas prevention focused people will narrowly focused on fewer items. The following task gives an illustrative example.

In Figure 4.2, there is an '8' among the '9's. To spot this one '8', promotion focused people, who prefer eager strategy in goal pursuit, can be expected to focus their attention

on a broader area, at the cost of compromising clarity / resolution of their vision, in order to include more items in their search to increase the chances of making 'hits'. Prevention focused people prefer vigilant strategy in goal pursuit. They can be expected to narrowly focus on a smaller area to increase the clarity of their vision and to avoid 'misses', at the risk of excluding quick 'hits'.

Figure 4.2 Illustrative example – to spot an '8' among '9's in the graph



Attention can be forced or directed via manipulation. While an intuitive processing style (i.e., to reflect directly on available information) allows more freedom in directing attention, a procedural processing style (i.e., analytical processing of information) forces individuals to pay more attention to each item processed. Hence, information processing style will affect the impact of regulatory focus on information processing. The sixth research question in this thesis concerns the effect of regulatory focus on individuals' attention in information processing:

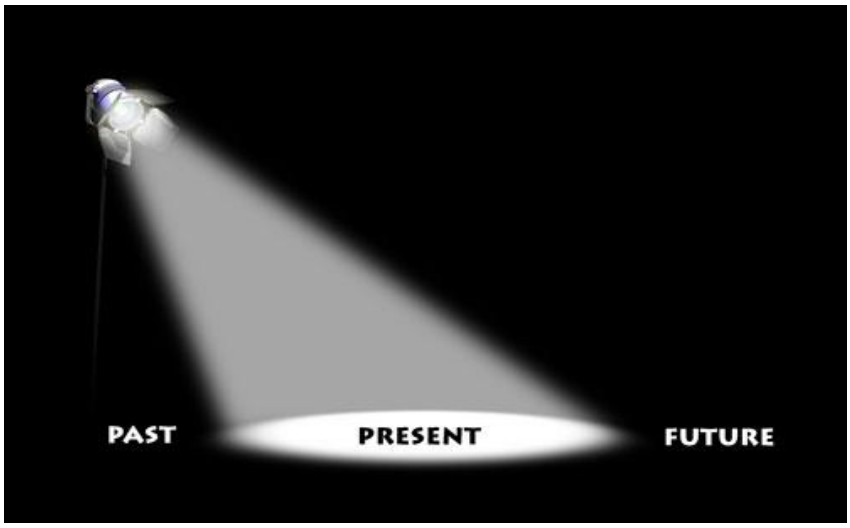
> ***RQ 6*:** How does regulatory focus affect individuals' attention in information processing under procedural versus intuitive style of information processing?

Under an intuitive processing style (i.e., to reflect directly on available information), regulatory focus orientations will be expressed and take effect. Promotion focused individuals will widen their attention to include more items in their consideration; whereas prevention focused individuals will narrow their attention to focus on fewer items. Whereas, under a procedural processing style, individuals are forced to take more effortful

thinking in processing information, and thereby is likely to reduce the impact of regulatory focus dispositions.

Since time is always a dimension, there will be possible temporal aspects in attention. As illustrated in Figure 4.3 below, people focus their attention on the present – metaphorically a spotlight illuminates the present. The amount of attention that tends to be given to things reduces with the increase in their temporal distance from the present.

Figure 4.3 Temporal aspect in attention



(image from blog.exuberantanimal.com)

It is hypothesized earlier (Section 4.4) that individuals' consideration of the relevance accounting information in respect its temporal distance is associated with differences in their regulatory focus orientations (H13); and discounting on the relevance of information over its temporal distance shall be more dominant with prevention focus (H14). Differences in judgments resulting from this distinct effect of prevention focus versus promotion focus shall be reduced when individuals are forced to process information procedurally. Therefore, it is hypothesized that

> **H15**: Procedural information processing reduces difference in judgments made by individuals with different regulatory foci.

4.6 Summary – research questions, hypotheses and overview of experiments

This chapter has outlined and justified the research questions and hypotheses developed in this thesis. This section of the chapter provides an overview of the four experiments in this thesis and summarises (in Table 4.1) research questions and hypotheses tested in the experiments.

4.6.1 Experiment 1, 2 and 3

As a result of the high profile allegations of audit failure in the Enron case and the failure to detect the unhealthy financial status of banks during the recent financial crisis, demands for quality control in audit have emerged strongly in recent years. A key mechanism for the securing of quality control in accounting firms has been the practical embedding of internal review activities in the process of audit work routines. The internal review itself generally involves more experienced auditors reviewing the work performed by less experienced auditors. Chapter Two reviewed prior literature of audit review (see Section 2.6). Early research sought evidence for the effectiveness and efficiency of review on improving audit judgment (e.g., Libby and Trotman, 1993; Trotman and Yetton, 1985). The findings provided empirical support for the benefit of internal review as a quality control mechanism. Later research acknowledged the fact that as a result of review, the preparers of the audit work are made more accountable for the judgments they make. The accountability feature of review is integral to audit work routines. As discussed in Chapter Two (Section 2.5), the perception, or expectation, of a review requirement alone was proved to have impact on auditor's judgment (e.g., DeZoort et al., 2006). As auditors do not work in a social vacuum so that are implicitly or explicitly always affected by accountability. The psychology of accountability has also been discussed (in Section 2.5 of Chapter Two). It is hypothesized that accountability functions as an intensifier / amplifier of self-regulation so that it intensifies the effect of regulatory focus on audit judgment. In the prior literature there is also recognition of the fact that persuasion pervades the audit review process (e.g., Rich, Solomon and Trotman, 1997). A research trend emerged since 2000s acknowledges the multi-personal aspects of review and investigates the interactions during the process of review. Most studies in this trend were inspired by the persuasion framework proposed by Rich et al. (1997a) (see Section 2.6.4). The framework suggested that the audit review process could be best understood as a set of persuasion interactions between preparers of the audit work and reviewers.

People pay selective attention in information processing, as influenced by their regulatory focus. Promotion focused individuals are primarily concerned with gains and sensitive to information concerning the presence and absence of positive outcomes. Prevention focused individuals are primarily concerned with losses and sensitive to information concerning the presence or absence of negative outcomes. As discussed in Chapter One (Section 1.3), the positive and negative outcomes can be any types, (which is associated with common sense of 'good things' and 'bad things' in life). It is thus reasonable to expect regulatory focus to influence an individual's information processing in audit judgment. Moreover, people experience fit when employing goal pursuit strategies that sustain their regulatory focus disposition. The experience of regulatory fit increases individuals' motivational intensities (Higgins and Spiegel, 2004) and creates feelings of rightness (see Section 1.4.2 in Chapter One, for fuller explanations on these two basic components of regulatory fit). It has been found to affect information processing in terms of the feeling of rightness (or wrongness) about information received that fit (or misfit) can generate (Camacho, Higgins and Luger, 2003), and the fluency in processing information associated with fit (Lee and Aaker, 2004). Regulatory fit can enhance the persuasiveness of messages received (Aaker and Lee, 2006). The influence of regulatory fit on persuasion has been researched in the context, for example, of consumer behaviour where empirical evidence has been gathered to explore and explain the impact of regulatory focus / fit on persuasion appeals. There has, however, been no study of the relationship between regulatory focus / fit and persuasion in audit, and auditors' judgments differ in kind from those made in contexts where the interaction has previously been studied, such as consumer choice or attitude change.

The aim of Experiment 1, 2 and 3 is to contribute to the existing literature by examine the effect of regulatory focus and regulatory fit on information processing and the persuasiveness of accounting information in audit settings. A two (regulatory foci) by two (regulatory fit / misfit) design was adopted. Participants comprised a mix of students from University of Glasgow and University of Strathclyde. They were randomly primed with either promotion focus or prevention focus at the beginning of each experiment. To assume the role as independent adviser invited to help the committee of a student drama club on activity planning decision, the experiment was tailored as analogy of audit judgment. (The research instrument used in Experiment 1, 2 and 3 will be explained in details in Chapter Six.) Utilizing the same set of case information about the club, each experiment required participants to make a series of judgment based on provided case information. Participants were required to perform likelihood assessments and estimation judgments on the club's funds that would be available, and to form a final recommendation regarding the number

of productions to be planned for the year in the last section. Specified sub-hypotheses for testing in various required judgments in the experiments are outlined in Table 4.1.

4.6.2 Experiment 4

Chapter Two has briefly reviewed prior research on heuristics and biases in audit judgment that generally examined the problem of cognitive limitation in audit (see Section 2.3). It is proposed in this thesis that the distinct effects of promotion focus versus prevention focus on human cognition can be applied to better account for difference in judgment among people, e.g., why some auditors fall into judgmental fallacies and others do not. Experiment 4 (reported in Chapter Ten in this thesis) sought to demonstrate the effect of regulatory focus on individuals' consideration of accounting information through an investigation boundary setting task. This experiment examined the influences of regulatory focus on the significance of information in judgment over uncertainty by manipulating temporal distance of past accounting information (Experiment 4a) and information processing style (procedural versus intuitive) (Experiment 4b).

Prospect theory suggests that people discount utility of a prospective outcome over uncertainty. Research on intertemporal choice (i.e., the choice among options with different outcomes at different points in time) introduced time as another dimension in judgment and manifested devaluation of future outcomes that utility is discounted over temporal distance. It is hypothesized that the effect of temporal distance on individuals' perception of relevance of the accounting information is associated with differences in their regulatory foci (H13); and the effect of discount over temporal distance on the relevance of the accounting information is more dominant with prevention focus (H14). These two hypotheses are tested in Experiment 4a.

Psychology studies on judgment over uncertainty often examine the effect of heuristics and bias on individuals' intuitive judgment (e.g., Kahneman and Tversky, 1979 and 1984) rather than procedural judgment made from more effortful thinking. Auditors most often make judgment in procedural processing style. They make calculations, interpreting information gathered, and running audit tests on accounting information available and evidence gathered. Procedural information processing can be expected to reduce difference in judgments made by individuals with different regulatory foci (H15). This hypothesis is tested in Experiment 4b.

Table 4.1 Summary table of research questions and hypotheses

RQ1: *Do the distinct effects of promotion focus and prevention focus concerning sensitivity to gains (positive outcomes) and losses (negative outcomes) respectively also apply to the processing of accounting information in audit judgment?*				
H1: Promotion focused people are more sensitive to and tend to be primarily concerned with 'positive' accounting information; whereas, prevention focused people are more sensitive to and tend to be primarily concerned with 'negative' accounting information.				
	H1a: Therefore, individuals with different regulatory foci will make different judgments as a result of differences in their sensitivities to 'positive' versus 'negative' accounting information processed.	Experiment 1a-1	H1a(i)	Page 154
		Experiment 1a-3	H1a(ii)	Page 157
		Experiment 1b-1	H1a(iii)	Page 161
		Experiment 1b-2	H1a(iv)	Page 163
		Experiment 2a-1	H1a(v)	Page 186
		Experiment 2a-2	H1a(vi)	Page 188
		Experiment 2b-1	H1a(vii)	Page 195
		Experiment 2b-2	H1a(viii)	Page 197
		Experiment 3a-1	H1a(ix)	Page 216
		Experiment 3a-2	H1a(x)	Page 219
		Experiment 3b-1	H1a(xi)	Page 225
		Experiment 3b-2	H1a(xii)	Page 227
		Experiment 4a	H1a(xiii)	Page 251
		Experiment 4b	H1a(xiv)	Page 258
	H1b: Compared with promotion focused individuals, those with a prevention focus are more sensitive to 'negative' accounting information.	Experiment 4a	H1b(i)	Page 251
		Experiment 4b	H1b(ii)	Page 258

Table 4.1 Summary table of research questions and hypotheses (cont'd)

RQ2: *Does the effect of persuasion fit also apply to audit judgment? Is the persuasiveness of accounting information processed be improved under persuasion fit induced* *(i) by matching message framing with individuals' regulatory foci;* *(ii) integrally, when the manner of task performance sustains individuals' regulatory focus;* *(iii) incidentally, after performing a separate task applying strategic means that fits individuals regulatory focus?*			
RQ2(i) *– message matching*			
H2: Message matching improves the persuasiveness of positive accounting information among promotion focused individuals.			
H2a: in likelihood assessments; and,	Experiment 1a-1	H2a	Page 154
H2b: in estimations.	Experiment 1a-3	H2b	Page 157
H3: Message matching improves the persuasiveness of negative accounting information among prevention focused individuals.			
H3a: in likelihood assessments; and,	Experiment 1a-1	H3a	Page 154
H3b: in estimations.	Experiment 1a-3	H3b	Page 157
H4: The effect of persuasion fit created by message matching affects the persuasiveness of accounting information processed and leads to variations in judgments among people.			
H4a: in likelihood assessments; and,	Experiment 1a-1	H4a	Page 154
H4b: in estimations.	Experiment 1a-3	H4b	Page 157

Table 4.1 Summary table of research questions and hypotheses (cont'd)

RQ2(ii) *– integral fit*			
H5: (Integral) Regulatory fit improves the persuasiveness of positive accounting information among promotion focused individuals.			
H5a: in likelihood assessments; and,	Experiment 2a-2 Experiment 2b-2	H5a(i) H5a(ii)	Page 188 Page 197
H5b: in estimations.	Experiment 2a-1 Experiment 2b-1	H5b(i) H5b(ii)	Page 186 Page 195
H6: (Integral) Regulatory fit improves the persuasiveness of negative accounting information among prevention focused individuals.			
H6a: in likelihood assessments; and,	Experiment 2a-2 Experiment 2b-2	H6a(i) H6a(ii)	Page 188 Page 197
H6b: in estimations.	Experiment 2a-1 Experiment 2b-1	H6b(i) H6b(ii)	Page 186 Page 195
H7: The effect of persuasion fit induced integrally affects the persuasiveness of accounting information processed and leads to variations in judgments among people.			
H7a: in likelihood assessments; and,	Experiment 2a-2 Experiment 2b-2	H7a(i) H7a(ii)	Page 188 Page 197
H7b: in estimations.	Experiment 2a-1 Experiment 2b-1	H7b(i) H7b(ii)	Page 186 Page 195

Table 4.1 Summary table of research questions and hypotheses (cont'd)

RQ2(iii) *– incidental fit*			
H8: (Incidental) Regulatory fit improves the persuasiveness of positive accounting information among promotion focused individuals.			
H8a: in likelihood assessments; and,	Experiment 3a-2	H8a	Page 219
H8b: in estimations.	Experiment 3a-1	H8b	Page 216
H9: (Incidental) Regulatory fit improves the persuasiveness of negative accounting information will be improved among prevention focused individuals.			
H9a: in likelihood assessments; and,	Experiment 3a-2	H9a	Page 219
H9b: in estimations.	Experiment 3a-1	H9b	Page 216
H10: The effect of persuasion fit induced incidentally affects the persuasiveness of accounting information processed and leads to variations in judgments among people.			
H10a: in likelihood assessments; and,	Experiment 3a-2	H10a	Page 219
H10b: in estimations.	Experiment 3a-1	H10b	Page 216

Table 4.1 Summary table of research questions and hypotheses (cont'd)

RQ3: *Do people feel more confident about judgment made under regulatory fit?*			
H11: Individuals are more confident about their judgment when induced with regulatory fit, (i) by message matching; (ii) integrally; and, (iii) incidentally.			
H11a: in likelihood assessment; and,	Experiment 1a-2	H11a(i)	Page 157
	Experiment 1b-3	H11a(ii)	Page 165
	Experiment 2a-3	H11a(iii)	Page 191
	Experiment 2b-3	H11a(iv)	Page 199
	Experiment 3a-3	H11a(v)	Page221
	Experiment 3b-3	H11a(vi)	Page228
H11b: in final recommendation.	Experiment 1c	H11b(i)	Page 168
	Experiment 2c	H11b(ii)	Page 202
	Experiment 3c	H11b(iii)	Page232

Table 4.1 Summary table of research questions and hypotheses (cont'd)

RQ4: *What would be the effect of regulatory misfit on promotion and prevention focused individuals in audit judgment?*			
H12: Individuals are likely to take more careful thinking in processing the messages when induced with regulatory misfit, and therefore, there will be no difference between judgments by individuals with different regulatory foci.			
H12a: in likelihood assessments; and,	Experiment 1a-1 Experiment 2a-2 Experiment 2b-2 Experiment 3a-2	H12a(i) H12a(ii) H12a(iii) H12a(iv)	Page 154 Page 188 Page 197 Page 219
H12b: in estimations.	Experiment 1a-3 Experiment 2a-1 Experiment 2b-1 Experiment 3a-1	H12b(i) H12b(ii) H12b(iii) H12b(iv)	Page 157 Page 186 Page 195 Page 216

Table 4.1 Summary table of research questions and hypotheses (cont'd)

RQ5: *How do regulatory focus orientations and the temporal distance of accounting information interact to affect the cognition and use of that information in audit judgment?*			
H13: The effect of temporal distance on individuals' perception of relevance of the accounting information is associated with differences in their regulatory focus orientations.	Experiment 4a	H13	Page 252
H14: The effect of discounting over temporal distance on the relevance of the accounting information is more dominant with prevention focus.	Experiment 4a	H14	Page 252
RQ6: *How does regulatory focus affect individuals' attention in information processing under procedural versus intuitive style of information processing?*			
H15: Procedural information processing reduces difference in judgments made by individuals with different regulatory foci.	Experiment 4b	H15	Page 259

Chapter 5: Research methodology

5.1 Introduction

This study aims to contribute to the existing literature of audit JDM studies by introducing Regulatory Focus Theory and Regulatory Fit to experimental research in this field. With growing popularity in management and behaviour studies, these two concomitant psychological perspectives are hypothesised to help advance current understanding of audit judgment.

In the previous chapters, the relevant literature in audit JDM research and Regulatory Focus Theory / Regulatory Fit were reviewed and the main hypotheses of this thesis were outlined. This chapter illustrates the research design of this study starting with explanation of the methodology choice and research methods adopted in this thesis. The choice of data collection methods (paper-and-pen based and internet-based experiment) is justified and data analysis techniques are explained in this chapter.

This chapter starts by setting out the methodology of this thesis and then justifying the roles of experiments and pre-experimental qualitative study in this thesis. The following section explains and discusses the methodological issues of experimental studies in accounting and auditing, focusing on the trade-off between the level of complexity laboratory setting can incorporate and the validity of results. The materials developed for the experiments are then briefly introduced before outlining the manipulations and measurements taken in the experiments, as well as the data analysis techniques. The last section of this chapter demonstrates the qualitative methods employed in the pre-experimental studies of this thesis.

5.2 Methodology choice

Research is commonly defined as a scientific and systematic search for knowledge (Kothari, 2004). Social science research primarily enquires into human subjects and their behaviour in a social context (Punch, 2005). Research into human beings is significantly different from research into the natural world. Social researchers necessarily ground their research on some philosophical assumptions, either explicitly or implicitly, that affect their view of the world and the way in which the society may be investigated (Burrell and Morgan, 1979). By characterizing human beings as subjects, and everyone and everything around them as objects, individuals construct around the subject-object relationship, their belief about what is true or false in their objective world (Ryan, Scapens and Theobold, 2002). Burrell and Morgan (1979)'s view is shown in Figure 5.1 below:

Figure 5.1 Burrell and Morgan (1979)'s schema and 4 paradigms

Research approaches	Assumptions about the nature of social science and the nature of society			
	Ontology i.e., position on reality	**Epistemology** i.e., position on knowledge	**Human nature** i.e., position on role of investigator	**Methodology** i.e., position on ways to investigate the world
Subjectivist (Interpretive)	Idealism	Anti-positivism	Voluntarism	Ideographic
Objectivist (Positivist)	Realism	Positivism	Determinism	Nomothetic

Dividing social science research into two research approaches – subjectivist and objectivist, and differentiating assumptions about the nature of society – sociology of regulation and sociology of radical change, the work by Burrell and Morgan (1979) provided a useful framework to help social science researchers make methodological choices in designing research (Laughlin, 1995). Burrell and Morgan (1979) proposed four paradigms based upon two main sets of assumptions about the nature of social science and the nature of society: ontology, epistemology, human nature and methodology (see Figure 2.1).

Ontology is the study of existence and concerned with construction of reality. Following the ancient Greeks there are two opposite positions: realism, belief of a mind-independent reality, and idealism, the view that reality is an artificial construction (e.g., mental representations form the reality). Epistemology is concerned with the ground of

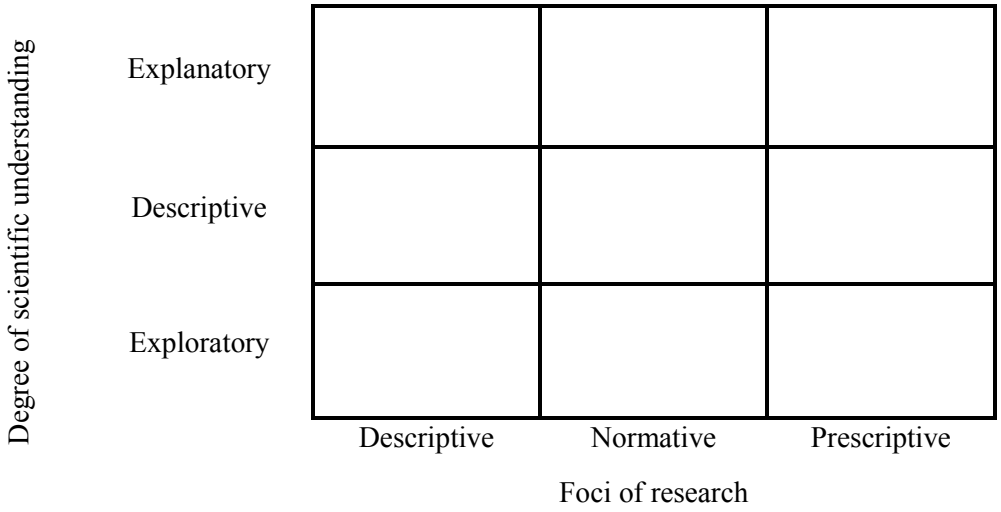
knowledge, i.e., whether knowledge is acquired or has to be personally experienced. The positivists view the development of knowledge as a cumulative process of developing and testing hypotheses (Burrell and Morgan, 1979). Anti-positivist holds a different view that knowledge can only be acquired through researchers' directly involvement in the activities to be investigated. Human nature is assumption about the relationship between human being and the external environment, i.e., whether the environment determined human or human create the environment (Burrell and Morgan, 1979). Researchers adopting voluntaristic view consider human beings as the feel-willed and active creators of their environment. At the other extreme, determinists regard human being as products of the environment that respond in a mechanistic manner to encountered situations. Researchers adopting this view believe behaviours of human being are predictable and determined by the mind-independent world. Burrell and Morgan (1979) argued that ontological and epistemological assumptions influence how researchers' view of human nature and these three collectively determine researchers' methodological nature. 'Different ontologies, epistemonologies and models of human nature are likely to incline social scientists towards different methodologies' (p2). The ideographic approach is 'based on the view that on ecan only understand the social world by obtaining first-hand knowledge of the subject under investigation' (p6), which emphasizes on difference between human beings. Whereas, emphasizing on similarities between human beings, the nomothetic approach seeks general laws and focuses on the process of testing hypotheses.

Psychologists seek nomothetic and general laws of psychological phenomena (Hood, 2013). Audit JDM research originated from the judgment and decision-making stream of psychology research and is greatly influenced by the positivist extreme of scientific approach. Researchers in audit JDM believe in the empirical testability of scientific theories and use hypothetico-deductive approach to seek scientific explanations (Chua, 1986). It is believed that 'any event can be presented as an instance of a universal law' (Chua, 1986, p 608). Therefore, hypotheses and predictions can be deduced from the general principles of psychological phenomena. This thesis follows the hypothetico-deductive tradition of audit JDM research. Hypotheses are derived from established effect of regulatory focus dispositions and regulatory fit in decision-making and then tested under experimental control.

Peecher and Solomon (2001) proposed a mental model of research (see Figure 2.2 above) to help audit JDM researchers to consider research design options. The model combined the degree of scientific understanding of extant literature and foci of research in a matrix.

The degree of scientific understanding was represented by stages of research activity – exploratory, descriptive and explanatory. The degree of scientific understanding accumulates from exploratory to descriptive research and from descriptive to explanatory research. Research foci can be regarding 'phenomena that occur' – descriptive, 'phenomena that ought to occur' – normative, and 'phenomena that promote convergence between the former two' – prescriptive (Peecher and Solomon, p 194).

Figure 5.2 Peecher and Solomon (2001)'s basic typology of research (p 194)



- *Exploratory* research – an early stage during which the research informally gathers observations with respect to some phenomena. The usual output of this research stage would be ideas suggestive to possible associations between variables and ideas for the next stage of research.

- *Descriptive* research – the stage during which patterns that were suspected based on the former exploration are carefully described to develop empirical generalizations.

- *Explanatory* research – the stage at which explicit theory is developed, tested and then recursively reformulated.

Peecher and Solomon (2001) posited that the scientific basis for research critically depends on whether sufficient understanding has been attained from earlier stage(s). Although there is a rich literature of regulatory focus studies in psychology, yet there has been no research that ever brings the theory to accounting or auditing research. This thesis is to push applicability of psychological perspectives in audit context. In the context of Peecher and

Solomon (2001)'s typology, this thesis can be considered as an exploratory study in the field of audit JDM research.

In addition, in the time since some of research in this study was carried out, there have been changes in audit and its environment, e.g., the requirement of audits by major audit firms being subject to inspection by Audit Quality Review Team (see Chapter Three for more information about modern audit practice and external audit review), which could lead the literature to misrepresent modern, current, audit practice. Hence, some qualitative work has been carried out to enrich the descriptive understanding of the context and the design of the experiment. This integration of pre-experimental qualitative methods and experiments will be explained in more details in the next section.

5.3 Research Designs

A research design indicates a framework for the collection and analysis of data for a study and the choice of the design reflects how the research objectives are pursued (Bryman, 2004). In this section, the research design of this study and its underlying rationales are described and justified.

5.3.1 Integration - Role of experiment, pre-experimental interviews and observations

This research is of exploratory nature and employs a quasi-experiment method. Experimental studies in social sciences are often criticized in respect of the issue of realism (e.g., Hogarth, 1993; Peters, 1993; Gibbins, 2001). The level of real world complexity that experimental settings can incorporate without compromising the validity of the result has always been a challenge confronting researchers. To better address the issues in audit judgment, qualitative methods are utilized, serving a confirmatory purpose, to grasp background knowledge of audit judgment.

5.3.1.1 The issue of realism in experimental studies

The issue of realism emerged as the most vexed problem in experimental research in audit and accounting since 1980s and debate often centres on the robustness of the findings. Swieringa and Weick (1982) distinguished between two types of realism: 'mundane realism' - regarding the representation of laboratory events, and their resemblance, or similarity, to those in the real world; and 'experimental realism', which is concerned with the sufficiency and validity of the laboratory setting – 'whether the laboratory events are believed, attend to, and taken seriously' (Swieringa and Weick 1982, p 57).

The issue of mundane realism concerns audit researchers. Experiments in audit JDM often use settings abstracted away from real contexts, and rarely mirror a specific real audit judgment or decision process. Peters (1993) sees it as a problem that most studies in this area are based on simple experimental settings and usually rely on statistical tests to validate their models. This line of criticism therefore focuses on issues such as the extent to which findings on biases in judgments and choice can be generalized beyond the simple laboratory conditions to real audit decision-making practice (Hogarth 1993). In 1980s,

Swieringa and Weick (1982) assessed over 100 experimental studies published in *Accounting, Organizations and Society*, *The Accounting Review*, and the *Journal of Accounting Research*. They found that those studies usually concluded with weak statements like 'some do, some don't', 'the differences are very great', and 'it's more complicated than that' (Swieringa and Weick, 1982). Moreover, Gibbins (2001) argues that the value of studying auditors depends on the richness of the study context. Psychologists and economics are likely have an advantage in abstracting from the applied setting; whereas accountants have comparative advantages in understanding the applied setting. Other researchers take a contrary view and consider mundane realism 'unnecessary and insufficient for internal validity or external validity' (Peecher and Solomon, 2001, p 197). More specifically, the success of an experimental setting lies in its simplification of the real world and the task. Criticism on the simplification of experiments substantially makes a list of factors from the reality that have been purposely omitted for greater control. Therefore, 'attempts to elevate external validity at the expense of internal validity are a grave mistake' (Peecher and Solomon, 2001, p 198).

The high level of complexity of audit judgment and confidentiality issue has restricted the access to real life information that researchers can obtain. It is often difficult to test more complete theories of accounting decision-making statistically. Hence, the generalizability, the external validity, of experimental findings often appears open to challenge. In respect of mundane realism, verification and discovery might become more difficult and less instructive. Swieringa and Weick (1982) argued that experiments can also serve important purposes of discovery and theory development:

> 'Experiments can be used to create conditions that do not exist now and to address "what if" questions. For developing and testing theory, the artificiality of an experiment may facilitate a clean test of a theory, lack of random sampling may not be a disadvantage because it is the theory that facilitates generalization across actors and settings, and triviality becomes a substantive rather than a methodological issue.' (Swieringa and Weick, 1982, pp. 57)

Moreover, there is a tendency to assume that practitioners always make the best participants and the use of practitioner participants ensures external validity of the study (Peecher and Solomon, 2001). Thus it has been widely asserted that students are inappropriate and misrepresentative surrogates for practitioners. The use of students as experimental subjects raises concerns, for some commentators, regarding mundane realism

(Swieringa and Weick, 1982). However, due to the unavailability of practitioners, the use of student subjects has become the practical option for many experimental studies (Liyanarachchi, 2007). Liyanarachchi (2007) defends the feasibility of using students as surrogates in experimental studies. He notes the pragmatic and financial reasons (e.g., time required for participation) for using student surrogates. More significantly, he argues that gaining access to accounting practitioners is often quite difficult and that certain compromises (e.g, non-random sampling of subjects) may be forced by their use that eventually undermine the utility of the experiments (Liyanarachchi, 2007, p 50). Students might be different from practitioners in many respects, but whether these differences severely limit the appropriateness of the use of surrogates is difficult to establish, and ultimately is an empirical question and dependent on the particular features of the case and context. In considering the likely impact of the use of surrogates, it is important to distinguish between essential features affecting the validity of experimental findings from non-essential features (p 49). Although studies have attempted to empirically test the validity of surrogates (e.g., Abdel-khalik, 1974; Ashton and Kramer, 1980; Gorden, Slade and Schmitt, 1986; Liyanarachchi and Milne, 2005), it remains unclear whether, in the audit context, differences such as skills and age override certain psychological properties in judgment. Besides, differences between student subjects and practitioners may be a theoretical interest to some researcher (Peecher and Solomon, 2001).

Furthermore, accounting students and practitioners share a similar cognitive structure as practitioners (Hodge, 2001; Liyanarachchi, 2007). Libby et al. (2002) argued that student subjects are ‘entirely appropriate’ in studies that focus on general cognitive abilities (Libby et al., 2002, p 803). In his view, experiments should avoid using professional subjects due to increasing researchers’ own time and expense, unless it is necessary for achieving research objectives (p 803).

Mundane realism can only be obtained by converging results of many studies in one area (Liyanarachchi, 2007). There is a danger of generalizing from one single study and therefore replications are important to establish ‘significant sameness’ from a series of related studies. It was also noted that, due to the limited availability of professional subjects, such replications becomes extremely difficult if relying entirely on practitioner subjects when conducting experiments.

5.3.1.2 Methodology of the experiment and the quasi-experiment method

The method of science relies on 'observation of the world'. Many psychologists identify their discipline as natural science and their essential methodology as the experiment (Hood, 2013). The most important criterion of method of science is a scientific procedure that data can be repeatedly obtained to enable public replication of causal claims from research.

Data and theory are the most important elements of science and they interlink in complex ways. Theory is the 'organization of concepts that permit prediction of data' (Elmes et al., 2003, p 34) and data is the source of theory. A deductive study is a process that hypotheses and predictions on specific event are generated based on derivation from theory. Inductive approach is the process of generalizing theory from observations of specific events. Psychology research is mainly conducted in the form of experiments in which 'the data are collected and presented in the form of numbers – average scores for different groups on some task, percentages of people who do one thing or another, and so on' (Goodwin 2002, p 75). This thesis is a hypothetico-deductive study that follows the tradition of audit JDM research.

Experimental approach is characterized by great control over the research environment and some variable are manipulated to observe their effect on other variables (Kothari, 2004, p5). It is the most appropriate method to examine causal relationship between variables (McIntyre, 2005).

> 'They (psychologists) seek …general laws that govern psychological phenomena. These laws are discovered by means of true experiments, with participants randomly assigned to experimental and various comparison groups. At least one independent variable is introduced in the experimental group, and differences in outcome are assessed on one or more dependent variables. The variables are measured and the data analysed by statistical methods. Hence, the establishment of a causal linkage between one or more independent and one or more dependent variables in a research design that is specified in enough detail so that independent scientists can replicate the results' (Hood, 2013, p 1318).

For a true experiment, random assignment of participants is essential. Audit JDM research often targeted on a specific group of research subjects that share certain qualification and characteristics, which mean random, in strict sense, can not be achieved. Hence, true

experimental methods cannot be used in audit JDM research. In such case, quasi-experimental method is at researchers' disposal. Quasi-experimental design facilitates meaningful comparison between convenience samples that differ on some significant variables (Hood, 2013).

5.3.1.3 The integration of experiments and qualitative pre-experimental work

Qualitative and quantitative methods and their underlying presuppositions have been increasingly debated since the early 1980s as though one or the other should eventually emerge as superior (Newman, 1998). The partnership between experimental and qualitative methods was recommended by methodologists, by which more complexity can be built in (Peters, 1993; Bryman, 2006). To address the research topics, qualitative methods has been employed to support the design of experiments and the development of simulation cases. The research interest of this study centers on the persuasion aspects of the audit review process. Interviews of audit practitioners and observations of auditors' fieldwork help to update the descriptive data from the audit review process and to gather more detailed information of modern practice. By means of qualitative methods, the hypotheses and the construct of laboratory events are developed with more confidence. It is expected that this integrative research design will provide an alternative option for future research.

Bryman (2006)'s reviewed research studies that combined quantitative and qualitative methods. Studies were categorized according to their primary discipline. The results strongly suggested that mixed method is more commonly practised in some disciplines than others[14], and it is not popular in accounting and auditing study. In fact, there are few instructions available regarding 'how, when and why different research methods might be combined' (Bryman, 1998, p 155). There are various ways of integration of quantitative and qualitative methods. The outcomes of integration of quantitative and qualitative methods are not always predictable. 'While a decision about design issues may be made in advance for good reasons, when the data are generated, surprising findings or unrealized potential in the data may suggest unanticipated consequences of combining them' (Bryman, 2006, p 99).

[14] Among the sample gathered in Bryman (2006), sociology contributes the largest amount of mixed method studies, which constitute 36% of the sample. For the rest, 27% of the articles are in social psychology, 23% are from management and organizational behaviour studies, 8% in geography and 7% are media and cultural studies.

Some researchers attempted to formalize the integration in order to provide guidance for other researchers in respecting the ways to combine quantitative and qualitative methods. Attention has been drawn to issues such as the data collection strategy – data to be collected simultaneously or sequentially; priority of data collected (quantitative or qualitative); the function of integration; and, stage where integration takes place.

To justify the adoption of combined methods, one of the methodological decisions researchers need to make is the rationale and the function of the integration (Bryman, 2006, p 105). Greene et al. (1989) devised a scheme isolates five justifications for combining qualitative and quantitative research: triangulation, complementarity, development, initiation, and expansion. Integration as a function for triangulation is to corroborate results from different methods. As a function of complementarity, the integration is to 'seek elaboration, enhancement, illustration, clarification of the results from one method with the results from another' (Bryman, 2006, citing from Greene et al., 1989, p 259). For development purpose, integration seeks to use the results from one method to help develop or inform the other method (Greene et al., 1989; Bryman, 2006). Integration may also serve the purpose of initiation discovery of new perspectives and contradictions of results from different methods. It can also help to expand research in breath and range of enquires. The integration adopted in this thesis is to assist the development of research so that qualitative data gleaned can help strengthen the experimental design.

Another predetermined issue of adopting integration methods is concerned with the stage in the research process when integration applies. Several writers have pointed out that quantitative and qualitative research can be combined at different stages of the research process: e.g., formulation of research questions; sampling; data collection; and data analysis. The pre-experimental qualitative part of this thesis is to support the design of the research and to assist the formulation of research question.

5.3.2 Experimental Design

Audit JDM research is part of psychology studies on behaviour and decision theory that 'use controlled experimental settings to allow researchers to remove many of the confounding factors that make audit judgment very complex' (Trotman 1998, pp. 115-116). This research follows the experimental tradition of audit JDM research to explore the

applications of Regulatory Focus Theory and Regulatory Fit in audit judgment.

5.3.2.1 Execution of accounting experiment

The research subjects in the study reported in this thesis comprised of a mix of undergraduate students of Accounting and Finance and accountants from the industry. The use of students as surrogates of practitioners is not rare in experimental studies in audit. For instance, Hodge (2001) experimented on a group of forty-seven MBA students as surrogates of online investors in a study on source credibility of audited and unaudited information accessible on the web. He suggested that graduate business students possess many characteristics of online traders, e.g., both are self-motivated and understand financial statements and the role of auditing. Hence, there is no reason to expect that the characteristics by which students differ from practitioners would interact with regulatory focus or responsiveness to accountability. In addition, the experimental material is greatly simplified and carefully constructed to remove unnecessary complexity of real practice.

Survey research methods allow for much wider sampling of persons, which can be administrated by mail, Internet, or personal contact, etc. (Hood, 2013). Utilizing survey tools, this thesis designed two experiments using questionnaires, one being paper-and-pen based and the other Internet-based.

5.3.2.1.1 Paper-and-pen based experiment

Experiment 1, 2 and 3 of this thesis used the paper-and-pen method to execute the experiment. To ensure participants are capable of performing the tasks in the experiments, subjects were recruited and assigned to each experimental task taking into account the required level of accounting knowledge of each task. A total of 311 undergraduate students from University of Glasgow and University of Strathclyde were recruited: eight-two students participated in Experiment 1; ninety-four students participated in Experiment 2; and, one hundred forty-five students participated in Experiment 3. All participants in this research have completed study on the related topic and are reasonably familiar with the required knowledge of each task. Moreover, subjects in paper-and pencil based experiments received small treats – chocolate bars as a reward for their voluntary participation.

5.3.2.1.2 Internet-based Experiment

Experiment 4 is conducted as an internet-based experiment. Experiments in audit usually collect data using pencil-and-paper based method. At 2002, there were only 5 published internet-based experiments in the field of behavioural accounting research (Bryant, Hunton, and Stone, 2004). Benefiting from the development of web technology, computer-based and internet-based experiments[15] are getting more popular. They help the researcher to obtain large sample sizes and get world wide access to subjects previously hard-to-reach.

Two-hundred-and-twenty-one participants had participated in this experiment in responding to the email invitations sent out.

It has been argued that compared with conventional laboratory experiments, internet-based method may carry higher threat to the validity of the experimental result. Using a triangulation approach, Krantz and Dalal (2000) compared the results of nine internet-based experiments with those of laboratory experiments and reported on the consistency between the results of both types of experiments. Hodge (2001) executed his experiment in both controlled 'in-lab' and 'out-of-lab' online setting. The results indicate no difference between responses from participants in both settings and both groups completed the task in a similar manner[16]. Furthermore, Bryant et al. (2004) suggested a few potential advantages of internet-based experiment such as 'increased variability in times and settings', 'decreased or eliminated data entry errors' and 'decreased potential diffusion, i.e., participants not in a treatment condition learn information intended only for those in the treatment condition' (pp. 117-118).

Experiment 4 was conducted using SurveyMonkey[17], one of the most popular web-based data collection site. Using the design tool, participants are randomly assigned to treatment conditions. The order of questions is programmed so that the route is logically mapped.

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[15] According to the definition of 'internet-based experiment' by Bryant, Hunton and Stone (2004), this type of research does not include 'computerized PC-based or LAN-based experiment conducted in controlled environments that do not utilize the Internet'; 'Internet-based surveys' with no manipulation of variables; 'experiments merely use Internet for internal coordinating and sharing purposes and research that use Internet tools only for data analysis' (p 109).

[16] Hodge (2001) compared the average amount of time participants spent on the task and the average classification error rate of both groups. Results reflect no differences across these two measures (pp.682-683).

[17] https://www.surveymonkey.com SurveyMonkey is a leading web survey development website.

Additionally, it also provides convenient options such as preventing participants from skipping important questions.

5.3.2.2 The cases

This subsection illustrates the experimental cases designed.

5.3.2.2.1 Drama Club

The case materials of Experiment 1, 2 and 3 are based on a 'real' student drama club, the committee of which is about to make planning of activities for the coming year. In this case, the committee is facing an option to produce one more play in the coming year. Before making this decision, the committee invites an independent professional to review the accounting information of the club and offer advice.

The research instrument used in Experiment 1, 2 and 3 is introduced in Chapter Six.

The case is designed as a simple audit task that builds in only the essential features of audit to construct a simulation. The club represents a small scale business producing only one type of product – plays. Participants play a similar role in the experiment as 'auditors' who review the accounts and give opinions to the 'owner' of the club, the committee. Using this abstract event, the information relevant to the judgment is kept to a low volume. This setting facilitates the experiment control and prevents the study from becoming a test of ability of participants. Further details of the case are presented in Appendix 2 and will be discussed in Chapter Six.

5.3.2.2.2 Manufacturing business

The case material for Experiment 4 was developed based on one of the experiments in Kinney and Uecker (1982) (presented in Chapter 10, Section 10.3.2). Kinney and Uecker (1982)'s case is about a representative small manufacturing firm. Presented with the firm's unaudited book valued and audited accounting values for the prior two years, the task is to indicate the investigation boundaries. To test the effect of unaudited book values, Kinney

and Uecker (1982) employed a convenient manipulation of the "unaudited" book values, either indicating a trend of increase or decrease in gross profit.

Adopting a similar structure, the case material of Experiment 4 was designed to include audited accounting values of the past five years. Participants were asked to indicate the range of possible values of the current year by setting the boundaries, for values out of which boundaries, further investigation would be necessary. Instead of presenting accounting values in an order that suggests a clear trend of increase or decrease, one of these past values was much lower than the rest. Two variations were created by manipulating the year the low gross profit ratio appeared in the material.

5.3.2.2.3 Airline business

A case based on an airline business set up by a travel agent company to study audit judgment on issues regarding the new leasing accounting proposals. The case is attached in Appendix 6 (on page 297).

Due to the complexity of the judgment on leasing issues student subjects are inappropriate as they lack of required knowledge to understand case material. In fact, after piloting the case materials with a group of postgraduate research students, it became clear that a high level of experience would be required for the task. In view of the fact that practitioners with the necessary experience of leasing are relatively few and difficult to identify, this case material has not been used in experiment in this thesis. However, every effort has been made to ensure that the research design is sound: It is anticipated that the materials developed can be used by this researcher at a later time, or by other researchers.

5.3.2.3 Measurement and manipulation / inducement of regulatory focus and regulatory fit

5.3.2.3.1 Regulatory Focus

Measurement and induction of individuals' regulatory foci are developed by Higgins and colleagues[18]. Regulatory foci of participants can be directly measured as a stable and chronic personal attribute by assessing their scores in the Regulatory Focus Questionnaire

[18] Available online at Higgins Lab (http://www.columbia.edu/cu/psychology/higgins/measures.html)

(RFQ) (see Appendix 1). Galinsky, Leonardelli, Okhuysen and Mussweiler (2005) employed a convenient measure of regulatory foci that 'taps into real differences in regulatory focus'. Candidates in their study were asked whether they were more concerned with avoiding negative outcomes or approaching positive outcomes before the experiment. It is designed to measure candidates' regulatory focus orientations immediately before the execution of experiment as indication of their regulatory foci during the experiment. Galinsky and colleagues took another measurement at the end of experiment to confirm that the measured disposition had been consistent and stable during the experiment.

Experiment 4 in this thesis adopted Higgin's RFQ to measure individual participants' regulatory foci. Using Internet-based experiment method, RFQ is conveniently built into the materials. All participants filled in the RFQ before performing experimental tasks. Their scores were calculated to determine their regulatory foci disposition.

Alternatively, regulatory foci can be primed by randomly assigning participants to write about current ideals and oughts (Freitas and Higgins, 2002); about their hope and aspirations or duties and obligations (Freitas, Liberman and Higgins, 2002); and, about past experience of success in pursuit of achievement or prevention from trouble – regulatory success (Higgins et al., 2001). The idea of these methods is to guide individuals through thinking about ideals and oughts to activate a promotion or a prevention focus. The priming process can be simplified by asking participants to think carefully about promotion or prevention goals. In Experiments 1, participants were instructed to read four goals representing a promotion focus or a prevention focus, e.g., to enhance reputation vs. not to let others down. They were then required to either select two strongest motivations or eliminate two weakest motivations. The aim of this process is to induce fit, though it is part of the rationale that by putting individuals into effortful thinking of promotion goals will activate a promotion focus; whereas effortful thinking of prevention goals will activate a prevention focus.

5.3.2.3.2 Regulatory Fit

Regulatory fit can be induced from a match between one's regulatory focus and strategy adopted in task performance. Cesario, Higgins and Scholer (2008) proposed one approach of inducing regulatory fit. They suggest that when told to select the 10 best arguments or to eliminate the 10 worst arguments form a set of 20 arguments, the decision method is either

fit with a promotion focus or a prevention focus, respectively (p 453). Experiment 1 adopted an analogous method. Participants read four promotion / prevention reasons for the task either to select two strongest reasons to induce fit / misfit or to eliminate two weakest reasons to induce misfit / fit.

Regulatory fit can be manipulated incidentally and integrally. Incidental fit is activated when individuals experience fit between their regulatory focus and strategy used in a separate task prior to the experiment. In Experiment 2, participants performed a short reconciliation task that was designed to activate fit / misfit. The design of the task (i.e., to circle choice or to score out elimination) encourages adoption of strategies fit / misfit with a promotion or a prevention focus.

Integral fit can be induced by incorporating tactics and strategies in the experimental task that match with individuals' regulatory foci. Experiment 3 employed an integral fit design. Each sub-task featured as an induction of regulatory fit / misfit while measuring responses.

5.3.2.4 Data analysis techniques

Data collected for Experiment 1, 2 and 3 was manually input into a data sheet (SPSS Statistics) for processing and analyses. Experiment 4 was conducted via the Internet. The server automatically pooled together all responses gathered spread sheets. The downloaded spread sheets were converted to the compatible format of SPSS data sheet. To avoid possible system error, all responses were also input into a data sheet and reconciled with the converted one. Any variation found was then checked against the original source from the server.

After sorting and coding of responses for each experiment, statistical analyses were performed. One-way ANOVA (analysis of variance) was run on the data to test the existence of relationships between variables. The F statistics indicate whether the variation in the dependent variables is significant across different treatment groups. Independent sample t-test was also carried out to test predictions and hypothesized differences between different groups (e.g., promotion focused participants vs. prevention focused participants). Non-parametric test was utilized to deliver a more robust analysis. For instance, Mann-Whitney's U test was performed to examine the differences of dependent variables in ranking between treatment groups.

5.3.3 Pre-experimental interviews and observations

A considerable number of studies have investigated the audit review process. The majority of them are experimental and focus on a small number of environmental factors. Descriptive studies made in recent years, after Enron induced reforms of audit, are also scarce. The purpose of this part of the study is to confirm assumptions made in prior experimental studies and to glean knowledge of audit practice in the real context in order to prepare the researcher for the designing experimental materials.

In total, four interviews and two observations had been conducted during 2010 and early in 2011. Interviewees include one audit director and three audit managers from three major audit firms. All of them were interviewed in their offices based in Glasgow. After the interviews, two of the interviewees had kindly agreed to grant permission for the following observational works. The observation was on audit field work of an audit team (consisting of an audit manager, a senior / in-charger and a junior auditor / trainee) on their client's premises for one-day. The other observation was at a firm's office in Glasgow for half day.

5.3.3.1 Interview topics and Interviewees

The main topic in the interviews was the process of audit review in practice. During the interviews, interviewees were asked to describe different stages of the review process, including the key personnel, the review objectives, as well as recent changes in audit environment and how these changes were anticipated in practice.

One of the questions for the interviewees was concerned with the emphasis of review of either documentation requirements or appropriateness of judgments. As an immediate reflection on these two review objectives in light of Regulatory Focus Theory, an emphasis on documentation requirement is more consistent with a prevention focus; whereas an emphasis on appropriateness of judgments is more consistent with a promotion focus. For this reason, interviewees were guided to reflect on this issue.

The interviewees were professional auditors consisting of three audit managers and one audit director (a position above manager level and below partner level). The interviews were conducted in 2010, when Audit Inspection Unit (AIU), the former Audit Quality Review Team, was newly formed. By the time of the interviews, two interviewees had experience of inspection by AIU, including one audit manager and one audit director.

5.3.3.2 Observation

Observation is a method often employed by studies intended to discover complex interactions in natural social settings (Marshall and Rossman, 1999). The observation method has strengths lying in its descriptive and exploratory nature. In addition, the observation method is also recommended as a useful technique to obtain direct answers to 'research questions, or to approach them from a particular angle, as part of a multi-method strategy' (Mason, 2002, p86).

The observational work in this thesis enabled the researcher to gather descriptive data of modern audit practice, helped to overcome the problem of limited descriptive studies in the literature, and support the development of research questions and hypotheses.

Good observation research efficiently produces rich and specific knowledge. Researchers have generally discussed the advantages and disadvantages of employing observation method (see Table 5.1 below).

Table 5.1 Advantages and disadvantages of observation method

	Mason (2002)	**Marshall and Rossman (1999)**
Advantages (Pros)	'Knowledge generated through high quality observation is usually rich, rounded, local and specific.' (p89)	• It is recommended for data collection in natural setting • Useful for describing complex interactions • Good for documenting major events, crises, social conflicts • Obtains large amount of data quickly (p134)
Disadvantages (Cons)	• highly time-consuming and resource –consuming • ethical dilemmas • massive amount of data	• Ethical dilemma • Data often subject to observer effects • Can lead researcher to 'miss the forest while observing the trees (p135)

However, observational work can be time-consuming compared to other methods of qualitative inquiry. It requires the researcher to actually be present in the setting of the research area and to contribute a certain amount of time to witness or experience what is going on in the setting (Mason, 2002). In some cases, discomfort, ethical dilemmas, and

even threats to personal safety can be involved in observation work. Difficulties can arise in terms of the problem of maintaining and managing a relatively unobtrusive role during the course of observation. It is also a challenge for the engaged observational researcher to capture the main issues without get lost in massive amounts of 'fast-moving and complex behaviour.' (Mason, 2002, p108). These are just some of the challenges associated with observational research.

Hence, it is important for the researcher to prepare as fully as possible for the observation beforehand. As noted in Mason (2002), 'simply "hanging around" in an unfocused way can be notoriously time-consuming, unproductive, exhausting and sometimes embarrassing or risky' (p90). The observational work in this thesis follows the guidance by Mason (2002) of how to conduct observational study.

5.3.3.2.1 Planning observation

It is important for the researcher to prepare 'not just for the process and techniques of observance, but also for social interaction', such as 'interrogating, listening, communicating, as well as a range of other forms of being, doing and thinking' (Mason, 2002, p 87).

It is easy to get unfocused and vague when observing and inevitably to selectively attend to events, human beings, behaviours and issues. This problem becomes particularly difficult without clarifying 'what to observe and what to be interested in' (Mason, 2002, p 89). Mason (2002) therefore suggested that observer must have at least some sense of what to look for in the setting, and some critical awareness of what has been observed that is interesting and relevant (p90). Additionally, data generation methods (e.g., interviews, focus group) alongside observation were recommended. In this thesis, a general description of the audit and audit review process had been obtained before the observation through interviews with experienced auditors from three major audit firms (local office in Glasgow). Before the observation, a question list had been then prepared based on information gathered from interviews. These questions were regarding three issues in the audit review process: the personnel; the interaction; and the judgment and documentation produced (presented in Figure 5.3 on next page). The questions listed in figure 5.3 were used to guide the observation and what the observer should search answers to for during the observation.

Figure 5.3 Questions for observation

The personnel:

- Who are the parties involved in the review process?
- What is their background of experience (including the level of professional and job training received)?

The interaction:

- How they communicate with the other party during the review process?
- How preparer report to the reviewer?
- How reviewer communicate with the preparer about their opinions on the work completed?
- How does preparer response to the reviewer?
- What is the form of communication during review (e.g., face-to-face oral explanation or electronic communication)?

Judgment and documentation produced:

- What judgment is exercised by the preparer?
- What review judgment is made by the reviewer and how are the review judgments made?
- What types of documents are produced at each stage of the review?

This question list (in Figure 5.3), together with the diagram of the audit review process (see Figure 3.1 on page 79) and a short list of main findings obtained from interviews (that had been conducted before the observation) and prior descriptive studies, was held by the researcher, as background knowledge, to help maintain orientation during the observation work. These findings were organized in relation to the personnel, interaction and the output – in terms of judgment and documents produced, so that a quick reference can be made during the observation. This helped the researcher to relate facts revealed to the framework and reminded the researcher of what issue to concentrate on during the observation.

Non-participant observation was adopted for this observational work, i.e., the observant not to participate directly in the activity being observed. The researcher took a shadow role during the observation, i.e., stand aside and remain silent[19].

It was also suggested by Mason (2002) that researcher shall 'also continue to take informed and strategic decisions throughout the whole process of data generation' (Mason, 2002,

[19] Although the presence of the researcher might cause individuals being observed to behave differently (at the beginning of the observation), it is believed that this impact should have vanished quickly as individuals started to concentrate on the work.

p87). Periodically, when convenient, short interviews were conducted to get fuller data, e.g., clarification of considerations behind certain behaviours observed.

5.3.3.2.2 Recording Data

Researchers often feel strongly the sheer inadequacy of text and language in relation to observational and participatory methods (Mason, 2002, p96). Field notes were taken during the observation in this thesis using templates prepared by referring to the sample field notes shown in Marshall and Rossman (1999, p109). The date and the location of the observation were recorded at the top of each field note. The researcher recorded what had been observed in relation to the questions prepared and left some space for recording immediate reflection and primary comments by the researcher. The specific time of observed events were also noted in the notes to help linking events. In the main body of the field note, a description of the observed events were noted including the subject being observed, the audit task / procedure the subjects were performing, as well as a brief notice of the environment on the top part of the note page. The rest part of the page was for further recording as the events took place.

5.3.3.2.3 Practical limitations

Audit is a professional practice and review takes place at various stages of the audit process and between different levels from junior assistant to partners. Limited access had been granted by the firms for observation. Hence, information obtained from observation was constrained to interactions between audit field team (including juniors, seniors and audit managers). Moreover, the researcher was aware of the possible interruption during the process due to the exercise of recording information. Writing and watching at the same time might lead to missing of potential findings.

5.3.3.3 Data analysis

A thematic analysis approach was employed to analyse data gathered from the pre-experimental studies.

Thematic analysis is similar to more popular method of investigation of texts, content analysis. The main difference between these two methods is that thematic analysis pays

greater attention to the qualitative aspects of the material analysed (Joffe and Yardley, 2004). Content analysis establishes categories and measures the frequency of the occurrence of certain categories. During the coding of content analysis, it is sometimes difficult to capture codes of complex terms (e.g., distress) (Joffe and Yardley, 2004, p 57). In a thematic analysis, element characteristics are established, which then allow researchers to combine analysis of frequency of codes with analysis of the meanings in context. Generally, thematic analysis has its strength in the analysis of issues with high level of complexity with the terms 'code' and 'theme' used interchangeably (Joffe and Yardley, 2004, p 57). The theme refers to a specific pattern of researchers' interests.

A thematic analysis was run on the transcripts of interviews. Themes established including:

- 'review objectives',
- 'stages of audit process',
- 'stages of audit review process',
- 'personnel',
- 'judgments'
- 'environmental issues',
- 'documents / justifications',
- 'technology' and,
- 'systems'.

Field notes produced during observation had been categorised in themes by referring to the issues identified from interviews and prior literature. To ensure no omission of insightful findings, a thematic analysis was also conducted on the field notes based on the themes listed above.

5.4 Conclusion

This chapter has explained the research methodology of this thesis.

Starting with clarifying the methodological choice of this thesis in Section 5.2, this chapter has justified the adoption of hypothetico-deductive approach of this thesis, which follows the experimental tradition of audit JDM research. Section 5.3 has provided a general discussion on the criticism on experimental studies in social sciences in respect of the issue of realism, and justified the validity of using student subjects as surrogates for audit practitioners. The experimental design has been set out in Subsection 5.3.2. The execution of experiments (e.g., paper- and-pen based and internet-based (Subsection 5.3.2.1); the experimental cases designed for the four experiments in this thesis (Subsection 5.3.2.2); the measurement and manipulations of regulatory focus / regulatory fit (Subsection 5.3.2.3); as well as the data analysis techniques (Subsection 5.3.2.4) has been briefly introduced. Details of the experimental design and case materials will be presented in later chapters.

It has been justified in Subsection 5.3.1 that quantitative and qualitative research can combined in this thesis to support the design of the research and to assist the formulation of research question. To confirm key assumptions made in prior experimental studies and to glean knowledge of modern audit practice to support the designing of experimental materials, pre-experimental work in this thesis has utilized qualitative methods, e.g., interview and observations. Subsection 5.3.3 of this chapter has set out the research methods adopted in the interviews and observations. Findings of the pre-experimental fieldwork have been reported earlier in Chapter Three in this thesis.

Chapter 6: The research instrument used in Experiment 1, 2 and 3

6.1 Introduction

This chapter introduces the research instruments used in Experiment 1, 2 and 3. The scenario design and associated materials was designed to resemble real audit scenario. The required judgments were inspired by and analogous to audit analytical procedures. Based on a hypothetical student-organized university drama club, participants in Experiment 1, 2 and 3 were asked to assume the role as 'auditor' to offer independent advice after reviewing relevant accounting information. To reduce the level of complexity and amount of time required, case material was developed to typify a plain business structure.

Accounting information is often presented in forms like spreadsheets, tables and charts, which constituted mixed information sets. Auditors can be expected to pay selective attention to information and evidence gathered. Therefore, promotion focused individuals are more sensitive to and tend to be primarily concerned with 'positive' accounting information, e.g., positive profit figures. Whereas, prevention focused individuals are more sensitive to and tend to be primarily concerned with 'negative' accounting information, e.g., bad debts. Prior literature has suggested that regulatory fit relates positively to the persuasiveness of messages (Lee and Aaker, 2004; Aaker and Lee, 2006). Under regulatory fit, information consistent with people's regulatory focus concern will tend to be more persuasive than other information. Hence, information concerning amounts attained and the collectability of amounts that will be more persuasive to individuals with a promotion focus; whereas information concerning the uncollected and uncollectable amounts will be more persuasive to individuals with a prevention focus.

Experiment 1, 2 and 3 in this thesis examine the effect of regulatory fit on the persuasiveness of accounting information. As discussed in the introductory chapter (Chapter One, Section 1.4.3.1), the framing of messages that match with an individual's regulatory focus can induce fit and potentially increase the persuasiveness of the message. Experiment 1 sought to explore regulatory fit and persuasion by studying the impact of a message matching strategy (matching the message to the subject's regulatory focus) on the persuasiveness of evidence and judgment. In prior research, regulatory fit is typically induced by the adoption of strategic means in task performance to fit and sustain subjects' regulatory focus. Such regulatory fit can be induced integrally, within the process of the

required judgment, or incidentally in an unrelated task prior to the required judgment (Chapter One, Section 1.4.3.2). Experiment 2 tested the effect of 'integral' regulatory fit - fit between individuals' regulatory focus and the strategic means of the task performance - on task performance / judgment and by implication on the persuasiveness of accounting information. Experiment 3 examined the effect on persuasiveness and judgment of 'incidental fit' – a fit between individuals' regulatory focus and the manner of prior task performance unrelated to the required judgment.

The following of this chapter explains the construction of the case material with details of each part / section of the experiments and the required judgments being clarified.

6.2 Case material – the drama club

Essentially the same case scenario was used in Experiment 1, 2 and 3. Participants in the experiments were informed that it was approaching the end of September and the committee of this drama club was about to meet soon to make a firm decision on the planning of activities for the coming year and in particular, to consider how many plays should be produced: two or three? Each participant was required to assume the role of 'auditor', as an impartial non-member of the club, who were invited by the committee to advise them on this decision.

The final judgment required was to recommend to the committee planning activities for the year, whether to produce the same number of plays as last year (2 plays), or to produce one more play (3 plays). The choice of number of productions to be planned depended on whether sufficient amount of funds could be generated. Based on the given information that revenue from selling tickets for performances of the productions never covered the full cost, they were instructed to assess the fund generation of the club in order to judge whether sufficient funds could be expected to be generated to cover the shortfall between the cost of production and ticket sales.

Participants were provided with information in relation to the other two main sources of funds of the club – members' subscriptions (Section a of each of Experiment 1, 2 and 3) and donations (Section b of each experiment) from former members and the general public, apart from revenue from selling tickets for its productions were provided in the early sections of the experiment. The case information was constructed to be open for

interpretation. For instance, the information in relation to the members' subscriptions was designed to be evenly balanced (as explained earlier in Section 6.2.1). The attained amounts and the uncollected amounts were the same.

Participants were required to make several judgments, in the basic form of audit analytical review procedures, when assessing information available. Fundamentally, they were to make estimations on the amount of funds likely to be generated and to assess the collectability of specified amounts for each source of revenue of the club. Participants also rated their confidence in the judgment made. The rating of confidence in making judgments was taken after each likelihood assessment as well as one taken after participants indicate their final recommendation.

6.2.1 Section a – Subscriptions

The first part of the case materials was regarding collection of subscriptions (as shown in Figure 6.1). Participants were presented with relevant information, comparable to that which auditors might gather concerning a client's receivables, including the total expected amount of subscriptions, the monthly cash receipts and pattern of collection from past two years, as well as replies to email reminders of payment due from students who had registered their interest in joining the club but who had not yet submitted their payments.

6.2.1.1 Case information in relation to subscriptions

Information given in this section (as shown in Figure 6.1 on next page) was designed purposefully for open interpretation. Materials did not include any strong indication of answer to the required judgment. For example, it was given in the case that among the total of 400 students registered to join the club this year, half of them had paid for subscriptions and half had not paid; among those who were sent with a reminder of due payment, half were still willing to join the club / to make payment and half no longer interested in membership / unlikely to pay. The information was constructed so that, on a balanced view, it would tend to signify an even chance of the collectability of the target amount, and in such a way that it could be framed as evidence pertaining to the collectability of amounts or as evidence related to the uncollectability of amounts.

Figure 6.1 Case information presented in respect of the members' subscriptions

The club gets students to indicate their interest in joining the club, by signing-up early in the autumn semester, but membership rights are given only when the full subscription amount of £20 per annum is received.

Below is a schedule showing the number of students who have signed-up this year:

	September				Total
	Week 1	Week 2	Week 3	Week 4	
Number of Sign-ups	45	147	161	47	**400**

The following is a schedule showing the monthly pattern of cash receipts for this year and in the two previous years:

Number of subscription cash receipts	September		Oct	Nov	Dec	Jan	Feb	Mar – Aug	Total
	Week 1, 2 & 3	Week 4							
2 Years Ago	101	67	28	32	25	7	0	0	260
Last Year	113	63	34	38	21	9	2	0	280
Current Year	**126**	**74**							**200**

The committee has contacted a random sample of 30 students who have signed-up for the club but not yet paid their subscriptions, asking them to confirm their continuing interest in the club and reminding them of the clubs reliance on subscriptions. The following responses were received within a week of the email being sent out:

	No.
Confirmed and intend to pay before the next club meeting	11
No longer interested in joining / unable to pay subscription	6
Undecided but intending to attend next meeting and decide soon	4
Not yet replied	9
Total	**30**

6.2.1.2 Tasks

Estimation of amounts generated from subscriptions

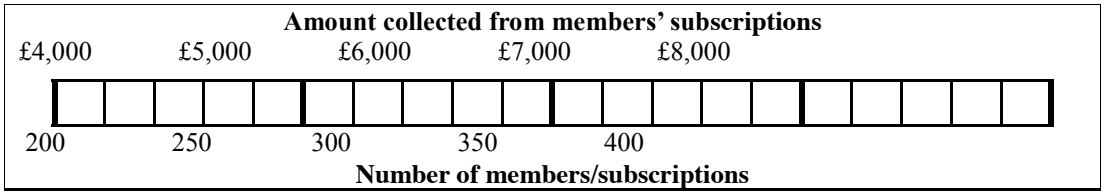
Participants were asked to indicate a range of total amount collected from club members' subscriptions for the year (as shown in Figure 6.2 on next page) in the subscriptions section of Experiment 1, 2 and 3.

Referring from the case information, the subscription fee was charged at £20 per head.

With the total number of 400 students signed up to join the club for the year, and 200 of them already submitted payments, participants were instructed to specify the range of possible amount according their assessment. The range is determined by the upper bound and the lower bound of amounts that might be collected, which means participants were to make two estimation judgments in this task.

Figure 6.2 Estimation of amounts generated from subscriptions (in Experiment 1, 2 and 3)

Please fill-in boxes in the grid below to indicate your assessment of the range of amounts that the club can reasonably expect to collect from subscriptions:



This required judgment was the same across all three experiments (Experiment 1, 2 and 3).

Likelihood assessment of possibility that specific amount would be generated

Participants were also asked to indicate as a percentage the possibility that the specific amount (£6,000) would be generated from membership subscriptions in the subscriptions section (Section a) of the three experiments (Experiment 1, 2 and 3).

Experiment 1 (message matching) asked participants to use a six-point Likert scale to indicate their likelihood assessments (i.e., "0" being "certainly not"; "1" being "highly unlikely"; "2" being "fairly unlikely"; "3" being "fairly likely"; "4" being "highly likely"; and, "5" being "certainly") in addition to specifying the probability as a percentage (as shown in Figure 6.3).

Figure 6.3 Likelihood assessment task in Section a – Subscriptions (in Experiment 1)

Please indicate how likely it is, in your view, that the club will be able to collect £6,000 or more from members' subscriptions this year.

5 **Certainly**	4 **Highly Likely**	3 **Fairly Likely**	2 **Fairly Unlikely**	1 **Highly Unlikely**	0 **Certainly Not**

Experiment 2 asked participants to indicate their assessment on the probability of the amounts collected from subscriptions and donations by choosing among nine variations of distribution curves, the one that best fit their judgment (as shown in Figure 6.4 below). The nine variations represented combinations of skewnesses (positive, normal, and negative) and densities (high, moderate and low), as outlined in Figure 6.5 (on next page). With the same median of a normally distributed bell curve, a positive skew demonstrated a distribution with higher probability of collecting greater amounts monthly; whereas a negative skew demonstrated higher probability of collecting smaller amounts monthly.

Figure 6.4 Likelihood assessment task in Section a – Subscriptions (in Experiment 2)

Please select the one distribution curve, from the nine shown below, which best fits with your assessment of the possible distribution of amounts likely to be collected from subscriptions in the year. Take the amount that you have already indicated "most likely" to be collected from subscriptions as being indicated by the peak (marked with a vertical line) in each of the distribution curves shown below.

Circle the curve to indicate your assessment.

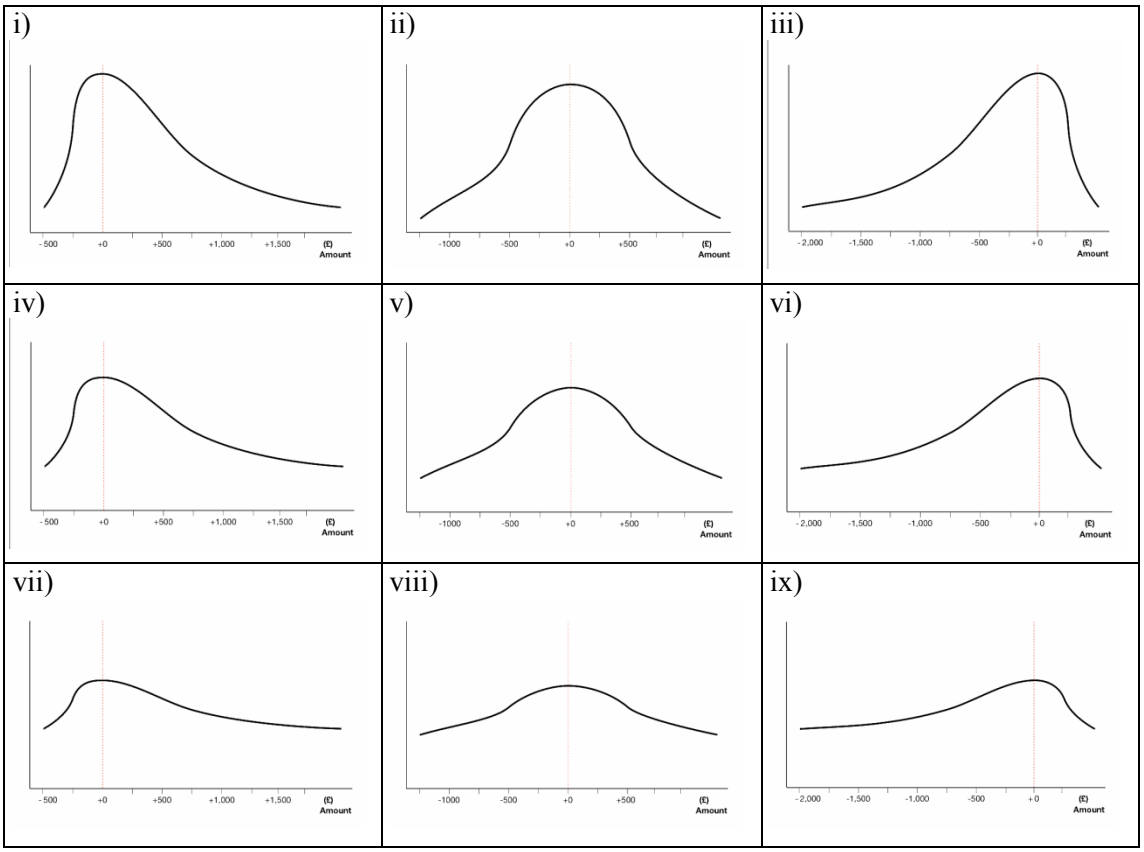


Figure 6.5 Distribution curves

Nine variations:

i. Positive skew (right-tailed distribution) with high density ($\mu = 2$, $\sigma^2 = 0.5$)
ii. Normal distribution with high density ($\mu = 0$, $\sigma^2 = 0.5$)
iii. Negative skew (left-tailed distribution) with high density ($\mu = -2$, $\sigma^2 = 0.5$)
iv. Positive skew with moderate density ($\mu = 2$, $\sigma^2 = 1$)
v. Normal distribution with moderate density ($\mu = 0$, $\sigma^2 = 1$)
vi. Negative skew with moderate density ($\mu = -2$, $\sigma^2 = 1$)
vii. Positive skew with low density ($\mu = 2$, $\sigma^2 = 5$)
viii. Normal distribution with low density ($\mu = 0$, $\sigma^2 = 5$)
ix. Negative skew with low density ($\mu = -2$, $\sigma^2 = 5$)

In Experiment 3 (incidental fit), participants were given a table in the members' subscription section that listed all amounts with £250 intervals from £4,000 to £8,000, including the specified amount of £6,000 in all experiments. The required task was to indicate, for each amount listed, the likelihood that equal amount of greater could be generated (as shown in Figure 6.6).

Figure 6.6 Likelihood assessment task in Section a – Subscriptions (in Experiment 3)

Please indicate by ticking one box in each column below, how confident you are that and an amount equal to or greater than that indicated will be collected from subscriptions in the year.

	Amount collected from members' subscriptions in the year (£) equal to or greater than:																
Likelihood	4,000	4,250	4,500	4,750	5,000	5,250	5,500	5,750	**6,000**	6,250	6,500	6,750	7,000	7,250	7,500	7,750	8,000
100% certain																	
99% likely																	
95% likely																	
90% likely																	
85% likely																	
80% likely																	
75% likely																	
70% likely																	
60% likely																	
50% likely																	
40% likely																	
30% likely																	
20% likely																	
10% likely																	
5% likely																	
0% certainly not																	

Confidence rating

All participants in the three experiments rated their confidence in judgment made (as shown in Figure 6.7) after performing likelihood assessment.

Figure 6.7 Confidence rating in Section a – Subscriptions (in Experiment 1, 2 and 3)

Please indicate how confident you are in the above judgment:

100% confident	
99% - 99.99%	
95% - 98.99%	
90% - 94.99%	
85% - 89.99%	
80% - 84.99%	
70% - 79.99%	
60% - 69.99%	
50% - 59.99%	
40% - 49.99%	
30% - 39.99%	
20% - 29.99%	
10% - 19.99%	
0% - 9.99%	

6.2.2 Section b – Donations

Donations received from members and the general public was another important source of funds for the club. The second section of the case materials provides information about donations the club received.

6.2.2.1 Case information in relation to donations

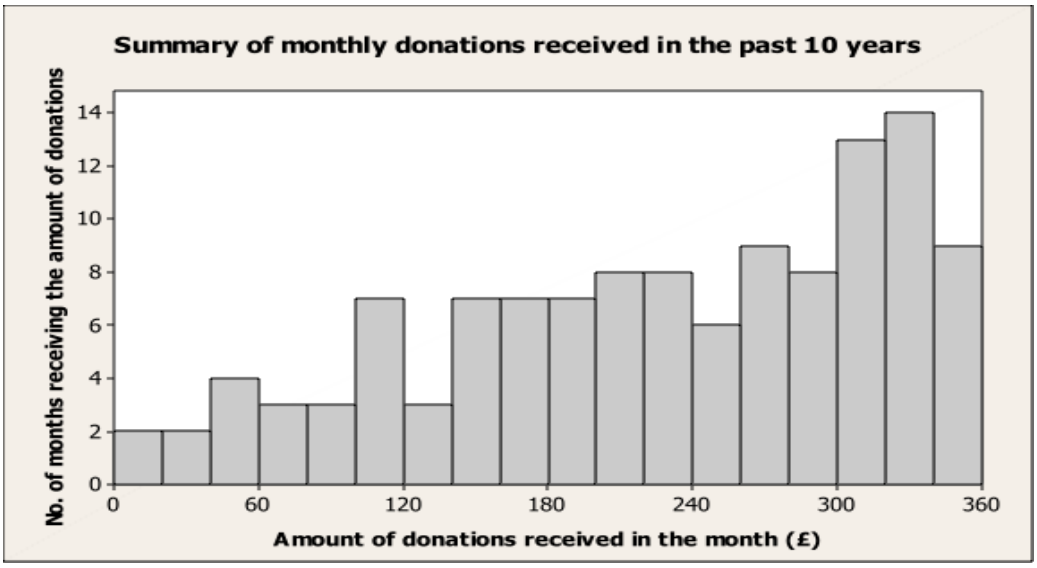
Being informed that with its good long-established reputation, the club had constantly received donations, participants were provided with a chart (as shown in Figure 6.8 on next page) summarizing records of donations received over the past 10 years.

The chart was presented as a histogram depicting the frequency, in terms of number of months, with which particular amounts of monthly donations were received. The whole

range of amounts, from 0 to £360, was aggregated into bins that each bin encompasses a range of £20 of width. For instance, as shown in Figure 6.8, there were thirteen months over the past 10 years that the club received donations amounting within the range from £300 to £320. The histogram indicated a negatively skewed distribution with higher density toward the greater monthly amount collected, i.e., more months in the past ten years receiving high amount of donations.

Figure 6.8 Case information – the chart of monthly donations received

The club's treasurer has prepared a schedule of the amounts received from donations in each month over the past ten years. Below is a graphical summary of the monthly donation amounts received over the past ten years based on the treasurer's schedule:



This chart was prepared based on record shown in the table below:

	Donation received in the past ten years									
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
September	296	179	9	252	304	206	128	359	261	245
October	275	146	340	237	257	163	214	194	285	141
November	101	306	331	216	174	269	290	288	147	124
December	324	27	323	111	312	253	349	334	87	132
January	116	325	30	322	54	342	186	335	313	234
February	222	278	354	14	143	358	100	264	228	287
March	102	291	167	317	101	339	266	47	326	303
April	271	305	327	44	300	150	308	71	302	181
May	307	227	345	304	215	189	276	201	65	119
June	176	239	223	343	295	159	91	205	272	249
July	326	213	59	318	299	84	330	212	73	329
August	197	151	171	198	244	235	185	162	352	356

Note: This table with past ten years' record was presented as appendix on the final page in the experimental material used in Experiment 1.

6.2.2.2 Tasks

In this section, participants were asked to indicate the expected total amount collected from donations received in the year, based on the information given (as shown in Figure 6.8). In Experiment 1, participants were given a table with two columns of the monthly average amounts and the equivalent annual total amounts (as presented in Figure 6.9 below) to indicate the amount closest to their estimation.

Figure 6.9 Estimation of amount received from donations in Section b – Donations (in Experiment 1and 2)

Please indicate in the table below the amount closest to your estimate of how much the club will collect from donations, by ticking in the column on the right.

Average monthly amount received (£)	Equivalent to annual total (£)	**Tick** the amount
Less than 100	Less than 1,200	
100	1,200	
110	1,320	
120	1,440	
130	1,560	
140	1,680	
150	1,800	
160	1,920	
170	2,040	
180	2,160	
190	2,280	
200	2,400	
210	2,520	
220	2,640	
230	2,760	
240	2,880	
250	3,000	
260	3,120	
270	3,240	
280	3,360	
290	3,480	
300	3,600	
310	3,720	
320	3,840	
330	3,960	
340	4,080	
350	4,200	
More than 350	More than 4,200	

Participants in Experiment 3 were required to make the same estimation judgment, without showing the table of monthly average and annual total amounts (see Figure 6.10 on next page).

Figure 6.10 Estimation of amount received from donations in Section b – Donations (in Experiment 3)

Please indicate your estimate of the amount the club will most likely collect from donations this year.	**£**

Participants in the three experiments were then required to indicate as a percentage the possibility that the specific amount (£3,000) would be generated from donations received (as shown in Figure 6.11 below), before rating their confidence in the likelihood assessment (the same the rating of confidence in Section a, see Figure 6.7).

Figure 6.11 Likelihood assessment task in Section b – Donations (in Experiment 1, 2 and 3)

Estimate as a percentage the likelihood that £3,000 or more will be received from donations this year:	%

6.2.3 Section c – Recommendation

After assessing given information and making judgments, the last section of the experiment reviewed the decision that the committee was about to make, and required subjects to make a recommendation concerning the number of productions the club should mount in the coming period. It was made clear that historical experience suggested that there would be a £3,000 shortfall between the cost of each production and the revenues from ticket sales, and that the recommended number of productions should be the maximum such that the expectable production shortfall can reasonably be expected to be covered by amounts generated from members' subscriptions and donations. Hence, a total of £9,000 was necessary to support the option to plan for extra production, which amount equaled the sum of the two target amounts that participants assessed their likelihood to be collected in the first two sections.

Participants were instructed to indicate their recommended number of plays (2 plays or 3 plays) and then indicated their confidence in this final recommendation in Experiment 1 and 3 (as shown in Figure 6.12).

Figure 6.12 Final recommendation in Section c – Recommendation (in Experiment 1 and 3)

You have already looked at and assessed the collectability of funds from membership subscription and from donations. Please now indicate how many plays you will recommend the club should plan to produce this year:

2 plays	
3 plays	

In Experiment 2, the options of two plays versus three plays were presented as different opinions, including a third option of 'unable to form an opinion'.

Figure 6.13 Final recommendation in Section c – Recommendation (in Experiment 2)

Please give your final opinion by ticking the appropriate box below:

In my opinion the committee are right and the club can afford to mount three plays this year.	
In my opinion the committee are wrong and the club can afford to mount just two plays this year	
I am unable to form an opinion, with reasonable confidence, on the question of the number of plays the club can afford to mount.	

The last required judgment in all three experiments (Experiment 1, 2 and 3) was to indicate confidence in the final recommendation (see Figure 6.7).

6.3 Summary of chapter and overview of Experiment 1, 2 and 3

It is proposed in this thesis that regulatory focus affects the processing of accounting information in audit judgment. Individuals are sensitive and tend to be primarily concerned with either 'positive' or 'negative' accounting information under promotion focus or prevention focus, respectively (H1). Prior literature has reported evidence for the persuasiveness effect of regulatory fit on processed information / messages. Thus, it is hypothesized that individuals will make different judgment as a result of the persuasiveness effect of regulatory fit – persuasion fit, on processed information consonant with their regulatory foci. Three experiments have been designed to test the persuasion fit effect on audit judgment. Each applies a different method of regulatory fit induction. In Experiment 1, regulatory fit was induced from the match between the message framings

and individuals' regulatory focus. Experiment 2 and Experiment 3 create regulatory fit experience from means applied in task performance within the task or in an independent prior task. (A summary of the hypotheses tested in each experiment is presented in Table 4.1 in Chapter Four, pp. 105-111).

This chapter has introduced the research instrument used in the three experiments. Participants in the experiments were required to assume the role as independent adviser invited to help the committee of a student drama club on activity planning decision. The experiments were tailored as an analogy of audit judgment. Utilizing the same set of case information about the club, each experiment resembled a real audit scenario that required participants to make a series of judgments based on provided case information. The required tasks included estimation judgments and likelihood assessments on the club's funds that would be available, as well as a final recommendation regarding the number of productions to be planned for the year. The construction of the case materials and details of the three related sections of the experiments, as well as each of the required judgments has been clarified. The three experiments were essentially the same, apart from minor difference in presentations and formats of some required judgment to serve the purpose of regulatory fit induction.

The following chapters report the results of the three experiments: Chapter Seven (Experiment 1 – message matching), Chapter Eight (Experiment 2 – integral fit) and Chapter Nine (Experiment 3 – incidental fit).

Chapter 7: Experiment 1 – Regulatory focus / regulatory fit and persuasiveness of accounting information: Message matching

7.1 Introduction

Regulatory Focus Theory suggests that people with promotion focus are sensitive to the absence and presence of gains and positive outcomes; whereas those with prevention focus are sensitive to the absence and presence of losses and negative outcomes. The study by Higgins and Tykocinski (1992) has shown that the positivity and negativity of outcomes not only applies in the frame of one's own goal pursuit, but seems to be associated with common sense of 'good things' and 'bad things' in life. It is therefore expected that this regulatory focus effect also apply to processing of accounting information in audit judgment: Promotion focused individuals attend especially to 'positive' accounting information, i.e., information concerning attained and collectable amounts; whereas prevention focused individuals attend especially to 'negative' accounting information, i.e., information concerning uncollected and uncollectable amounts (H1). Studies applying regulatory fit to persuasion studies revealed that fit improves persuasiveness of messages (Lee and Aaker, 2001; Aaker and Lee, 2004). It is proposed that this persuasion fit effect shall also apply to audit judgment.

The distinction between 'positive' and 'negative' accounting information can be manipulated and heightened using message framing (detailed explanation of message matching method is in Section 1.4.3.1). Applying the logic of message framing, accounting information of the same position can be either positive (gain / 'hits') or negative (loss / 'misses') framed, e.g., half paid vs. half not paid. Processing matching message induces regulatory fit; whereas processing mismatching messages induce regulatory misfit. The perceived persuasiveness of the information will be improved when the framing of the massage matches with individuals' promotion focus concerns (H2) versus prevention focus concerns (H3). As a result of this persuasion fit effect, individuals with different regulatory foci can be expected to make different judgments (H4). It is also hypothesized that the feeling of rightness from regulatory / persuasion fit will increase individuals' confidence in their judgment (H11). Prior research suggested that regulatory misfit lead individuals to take more careful thinking in processing information (Koenig et al. 2009). It is hypothesized that under the effect of persuasion misfit, individuals are likely to take more

careful thinking in processing the messages so that the impact of regulatory focus will be lessened. Therefore, there will be no difference between judgments by individuals with different regulatory foci (H12).

The above hypotheses are tested in an experiment that employs a 2 (regulatory foci) x 2 (matching or mismatching message framing) design to examine the effect of 'message matching' on the perceived persuasiveness of accounting information. Participants were primed with either a promotion focus or a prevention focus at the start of the experiment. Regulatory fit was fostered in the first section of the experiment where participants read the case materials in relation to the collection of members' subscriptions. Messages were framed either in the manner of 'hits' made (e.g., amount attained / payment confirmed) – the 'hits' framing, which is consistent with promotion focus concern; or in the manner of 'misses' to be prevented (e.g., amount unattained / payment unsecured) – the 'misses' framing, which is consistent with prevention focus concern.

The case materials used in this experiment has been explained in details in Chapter Six. In the case based on a student drama club, each participant was required to assume the role of an independent person who is invited to advice the committee of the club on planning activities of the year after reviewing accounting information in relation to the revenue generation of the club. This is constructed as an analogy to audit that audit opinion is formed based on judgments made from performing audit procedures.

Four (2 x 2) sets of research instruments were produced in this experiment. (One of these four sets is attached in Appendix 2.) Presented in the format as questionnaires, they were randomly distributed among participants. Participants in this experiment are students from University of Glasgow recruited in public places in the campus. Seventy-two students participated in this experiment and 62 valid responses had been collected [20]. The experimental materials were designed to simulate an audit analogous judgment that required minimum technical sense / understanding, so that there is no need for participants to have knowledge or experience in accounting and auditing. University students from any discipline[21] are deemed capable of participating effectively in the experiment.

[20] Ten participants only completed the task (for the priming of regulatory focus) in the instruction section without attempting the main experiment.

[21] Considerable proportion of the manipulation applied in Experiment 1 was to do with the wording of the message. For this reason, participants were mainly native students whose first language is English.

This chapter is structured as follow: The method of regulatory focus priming is set out in Section 7.2. The induction of regulatory fit using message matching method is explained Section 7.3. Results of dependent measures taken in three related sections of the experiment are reported in Section 7.4 – Experiment 1a; Section 7.5 – Experiment 1b; and Section 7.6 – Experiment 1c. Check on the validity of the experiment and the robustness of results is presented in Section 7.7. This chapter concludes with a summary of results and findings in Section 7.8.

7.2 Priming of regulatory focus

In this experiment, participants were primed with a promotion focus or a prevention focus before performing tasks. After a brief introduction of the scenario setting used in this experiment, participants read a list of reasons (as outlined in Table 7.1) why they might view participation in the scenario task as an opportunity or a list of reasons why they might view participation as an obligation.

These listed motivational reasons either represent nurturance concerns such as gaining valuable experience and enhancing personal reputation, or represent responsibility concerns such as avoiding damage to personal reputation and not letting-down others who might be trusting in them. The aim was to activate a promotion or prevention focus by leading individuals to think about nurturance needs and security needs.

Table 7.1 Reasons for consideration in priming

Promotion Focus	Prevention Focus
• To gain valuable experience and develop your expertise • To promote the best interest of the club and its members by giving the right advice • To enhance my reputation for taking on and coping with challenging roles • For the satisfaction and comes with achievement	• To avoid getting a reputation for being 'unhelpful' • Given the trust the committee has placed in you, you have a responsibility to try to help them avoid getting this decision wrong • So as not to let the committee down • To protect the club from making a damaging decision

To strengthen the regulatory focus framing, participants were encouraged to consider the listed reasons in ways that reflect promotion and prevention concerns respectively. In the promotion focus priming, individuals were asked to 'pick the 2 best/most important reasons'; whereas in the prevention priming, participants were told to 'score out the two weakest reasons'. This approach of priming followed that described by Cesario, Higgins, and Scholer (2008), which was based on the rationale that the approach of selecting the best arguments fits with a promotion focus while the one of eliminating the worst arguments fits with a prevention focus.

7.3 Manipulations – the matching messages

In the subscription section of this experiment (Experiment 1a), two sets of messages with identical information (as shown in Table 7.2) were produced using framings matching with promotion focus and prevention focus respectively. For instance, the framing applied to match with promotion focus described the amount that has been collected from membership subscriptions; whereas the one to match with prevention focus described the amount that has not yet been collected. Studies by Cesario, Grant and Higgins (2004) and Lee and Aaker (2004) employed similar method to frame the messages of persuasion attempts in ways that match or mismatch with the orientation of the message recipient.

Information of the same position can be either positive (gain) or negative (loss) framed, e.g., glass half full vs. glass half empty. The framings of messages applied in the materials did not alter the information conveyed but merely attempted to shift message recipients' focus towards 'hits' made (the amount attained) or 'misses' (the amount not attained).

Table 7.2 Framings of messages applied in the experiment ('hits' vs. 'misses')

	Promotion focus – 'hits' framing	**Prevention focus – 'misses' framing**
Message 1	200 students have paid	200 students have not paid
Message 2	An additional £2,000 collected will meet the target	£2,000 less than the required amount
Message 3	15 out of 30 students will pay-up	15 out of 30 students will not pay-up

As shown in Table 7.2, the information content of both message framings describes the same position with equal amounts being collected and yet to be collected from members subscriptions. The message set matching with promotion focus reinforces concern with 'hits' made and with information as it pertains to the collectability of the targeted amount of subscriptions. The message set matching with prevention focus reinforces concern with 'misses' to be prevented and with information as it pertains to the uncollectability of the required income from subscriptions.

7.4 Experiment 1a – subscriptions

After being primed with promotion or prevention focus, each participant started the task by reading a page of financial information about the membership subscriptions of a student drama club. As explained in Section 7.3, the information provided include three messages that are designed to match with promotion or prevention focus. Giving messages matching with promotion focus to individual participants primed with promotion focus create a matching / fit condition, while giving the same set of messages to individuals primed with prevention focus creates a mismatching / misfit condition.

It is hypothesized that as a result of the effect of regulatory fit on persuasiveness on accounting information, participants will reach different judgments (H4). Primed with a promotion focus, participants receiving case materials with messages with 'hits' framing (framed as informing amount attained and collectability) should be more persuaded towards higher collectability (H2); whereas primed with a prevention focus, those participants receiving 'misses' framing (framed as informing amount unattained and uncollectability) would be more persuaded towards lower collectability (H3). Reflected in judgments made, participants more persuaded by 'hits' framing would make higher estimation of amounts generated and the indicated higher possibility of collecting specific amounts; whereas those more persuaded by 'misses' framing would make lower estimation of amounts generated and the indicated lower possibility of collecting specific amounts. Individuals induced with regulatory fit shall feel 'right' about their judgments made and hence, be more confident about their judgments (H11). For those who received mismatching messages, their disrupted regulatory focus orientations will make them to think more carefully about information / messages received. Hence, there shall be no difference in judgments among individuals induced with regulatory misfit (H12).

7.4.1 Dependent measures and hypotheses testing

7.4.1.1 Experiment 1a-1: Likelihood assessment

The first task in this section required participants to assess the collectability of a specific amount (£6,000) from subscriptions based on the given information. Two measures were taken in relation to their likelihood assessment. Participants were asked to rate the likelihood of collectability of £6,000 using a six-point Likert scale from 0 ('Certainly Not') to 5 ('Certainly') at first and then to indicate the likelihood in percentage. The descriptive

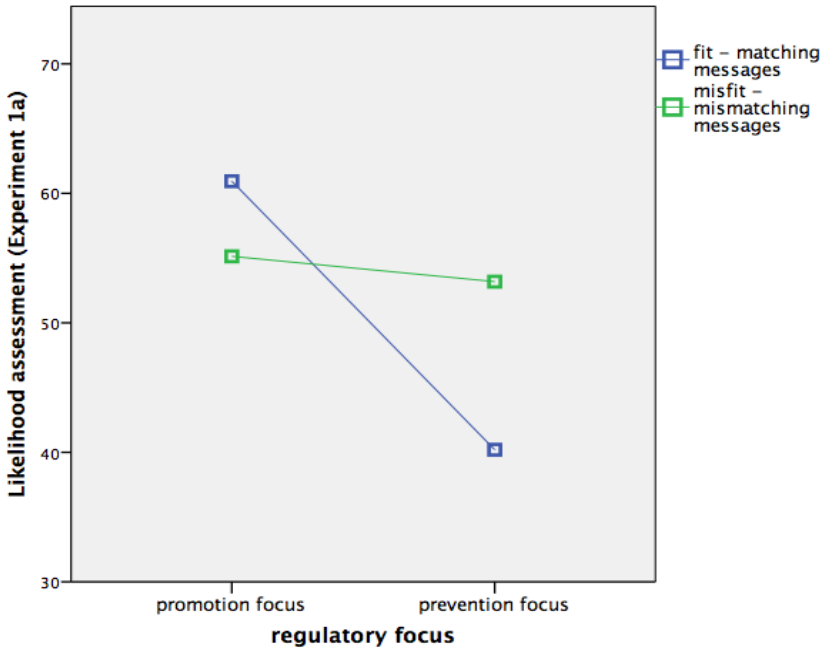
statistics of responses in this task are shown in Table 7.3.

Table 7.3 Experiment 1a-1 – Assessment of the likelihood of generating £6,000 from subscriptions

Likelihood Assessment		N	Mean (Likert scale)	Mean (%)	Std. Deviation
Group 1	Promotion + Matching	15	2.53	60.93	29.577
Group 2	Prevention + Matching	15	2.20	40.20	26.569
Group 3	Promotion + Mismatching	15	2.40	55.13	34.838
Group 4	Prevention + Mismatching	17	2.41	53.18	25.603
	Total	62	2.39	52.39	29.492

Responses using Likert scale were similar across all four treatment groups, $F = 0.645$, $p > 0.10$. The following are analyses of responses indicated in percentage (see Figure 7.1).

Figure 7.1 Experiment 1a-1 - Assessment of the likelihood of receiving £6,000 or more (%)



Note:
1. Materials given in fit condition for promotion focus = misfit condition for prevention focus. Messages were framed as 'hits' information about amount attained (e.g., how much had been collected) and collectability (e.g., how many individuals would make payment).
2. Materials given in fit condition for prevention focus = misfit condition for promotion focus. Messages were framed as 'misses' information about amount unattained (e.g., how much had not been collected) and uncollectability (e.g., how many individuals would not pay).

The mean of responses from participants primed with promotion focus was 58.03%, which is higher than the mean of those primed with prevention focus, being 47.09%. Their

deviations from the even chance (50%) were in the predicted directions. Promotion focused participants indicated higher likelihood, which suggested that they were more persuaded with parts of the information concerning collectability. Prevention focused participants indicated lower likelihood, which suggested they were more persuaded with parts of the given information concerning uncollectability. The differences in judgments between promotion focused participants and prevention focused participants were however not statistically significant, $F = 2.171$, $p > 0.10$, rejecting H1a(i). The effect of regulatory focus on individuals' sensitivity to 'positive' or 'negative' accounting information is not strong enough to establish a significant difference in this likelihood assessment judgment.

Promotion focused participants would be more persuaded by 'hits' messages (H2a). Among participants primed with promotion focus, those in the matching message condition ($M = 60.3\%$) made higher estimation than those in the mismatching condition ($M = 55.13\%$). However, the differences in responses between the two groups were not significant, $F = 0.242$, $p > 0.10$.

Prevention focused participants would be more persuaded by 'misses' messages (H3a). Among participants primed with prevention focus, those in the matching condition (persuasion fit), decided on a lower likelihood ($M = 40.2\%$), on average, than those in the mismatching condition (persuasion misfit) ($M = 53.18\%$). The difference was marginally significant, $t(30) = -1.40$, sig. = 0.09.

The biggest difference was found between the two matching treatment groups – the two groups processing messages with framings that match with individuals' regulatory focus concerns. As predicted, promotion focused individuals would be more persuaded by the 'hits' messages concerning the collectability of the subscriptions (H2a) and hence suggested higher likelihood ($M = 60.93\%$), whereas prevention focused individuals would be more persuaded by the 'misses' messages concerning with the uncollectability of the subscriptions (H3a) and hence suggested lower likelihood ($M = 40.20\%$). Promotion focused group indicated significantly higher likelihood than the prevention focused group, $t(28) = 2.02$, one-tail sig. = 0.026. This result supports the hypotheses that under the effect of persuasion fit, individuals with different regulatory foci make different judgments (H4a).

Results also confirm the prediction that processing messages mismatching with individuals' regulator focus concerns (persuasion misfit) lead to more careful consideration on the messages (H12) so that there would be no difference between responses from the two

groups given mismatching messages. The two mismatching groups made similar judgment in this task (M = 53% and 55%), t (30) = 0.18, sig. = 0.86, which supports H12a(i). This finding is consistent with Koenig et al. (2009)'s that regulatory misfit leads to (the more effortful) high elaboration.

7.4.1.2 Experiment 1a-2: Confidence rating

Participants across four treatment groups indicated their confidence in the likelihood assessments. It was hypothesized that message matching would lead to feeling of rightness and therefore increase individuals' confidence in judgments made (H11). The mean of confidence rated by the two matching treatment groups primed with promotion focus (M = 79.60%) and prevention focus (M = 75.67%) was lower than the two mismatching groups (M = 83.27% and 78.47%). No significant differences were found among the treatment groups, which therefore rejected H11a(i).

7.4.1.3 Experiment 1a-3: Range of possible amounts

Apart from assessing the collectability of £6,000 from members' subscriptions, individual participants also gave estimation on the total amount of revenue the club would be able to generate from members' subscriptions by indicating a range of expected amounts. The descriptive results are shown in Table 7.4 below and means of responses from the four treatment groups are exhibited in Figure 7.2 on next page.

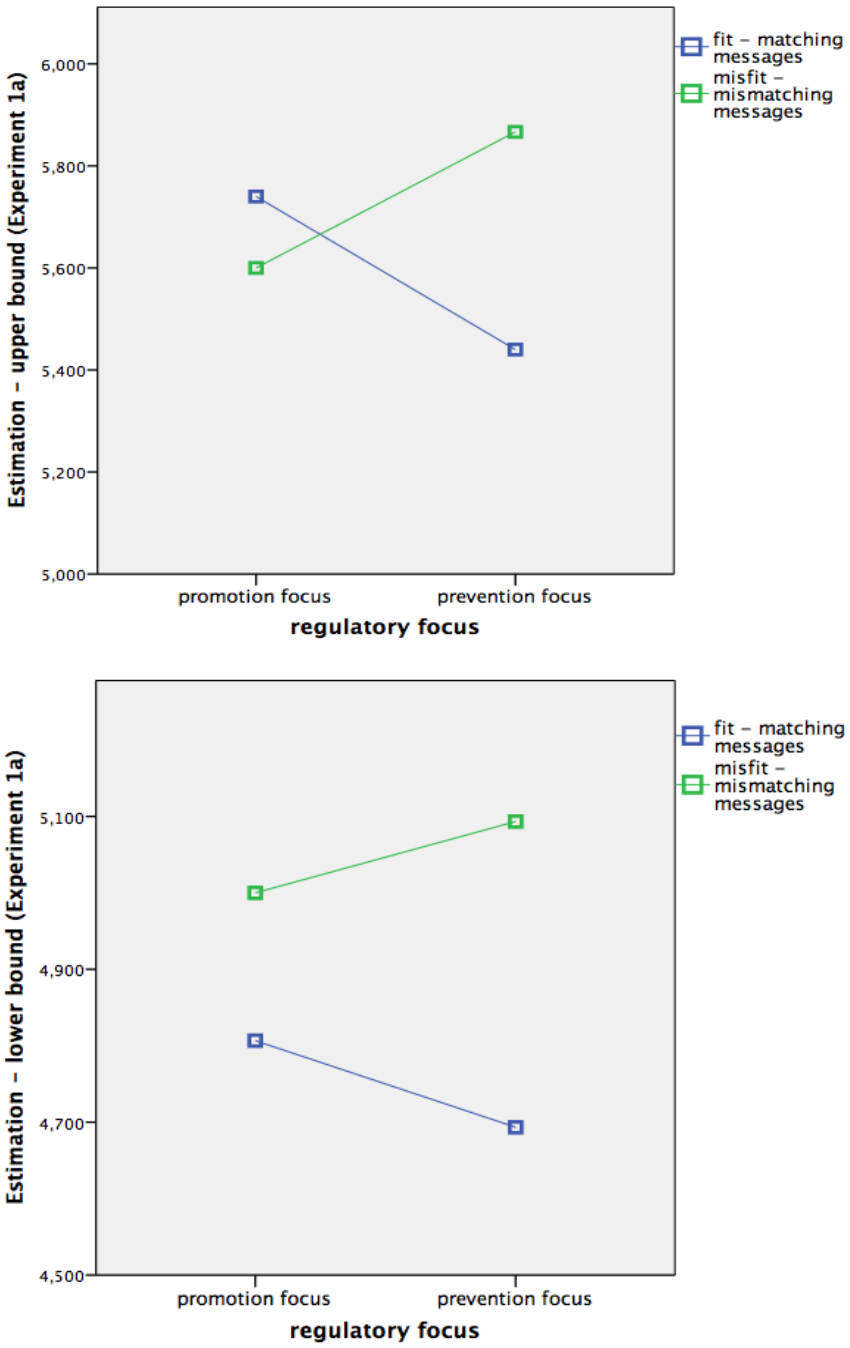
Table 7.4 Experiment 1a-3 – Indication of the range of amounts generated from subscriptions (£)

Estimation of the range of amount to be collected (£)		N	Upper bound		Lower bound	
			Mean	**Std. Deviation**	**Mean**	**Std. Deviation**
Group 1	Promotion + Matching	15	5740	860.066	4807	1017.326
Group 2	Prevention + Matching	15	5440	610.386	4693	724.536
Group 3	Promotion + Mismatching	14	5600	800	5000	908.083
Group 4	Prevention + Mismatching	15	5867	990.430	5093	827.618
Total		59	5663	821.458	4897	4896.61

Prevention focused participants gave the highest estimates of the upper bound and the lower bound, on average, when given mismatching message and they made the lowest

estimation when given matching messages. However, results of ANOVA suggested no significant difference in responses between participants primed with promotion focus and those primed with prevention focus, $p > 0.10$, rejecting H1a(ii).

Figure 7.2 Experiment 1a-3 – Estimation of subscriptions to be collected (upper and lower bound) (£)



Note:

1. Materials given in fit condition for promotion focus = misfit condition for prevention focus. Messages were framed as 'hits' information about amount attained (e.g., how much had been collected) and collectability (e.g., how many individuals would make payment).
2. Materials given in fit condition for prevention focus = misfit condition for promotion focus. Messages were framed as 'misses' information about amount unattained (e.g., how much had not been collected) and uncollectability (e.g., how many individuals would not pay).

In indicating the upper bound, promotion focused participants made higher estimates under the matching condition (M = £5,740) than those in the mismatching condition (M = £5,600) on average, F = 0.205, p > 0.10; whereas, for the lower bound, they made lower estimates under the matching condition (M = £4,807) than those in the mismatching condition (M = £5,000) on average (F = 0.29, p > 0.10). Hence, H2b was rejected.

Prevention focused participants under matching condition (M = £5,440) made lower estimation on the upper bound than those under mismatching condition (M = £5,867) on average, t (22.8) = -1.421, one-tailed sig. = 0.083, p < 0.10. In indicating the lower bound, prevention focused participants under matching condition (M = £4,693) made lower estimation than those under mismatching condition (M = £5,093) on average, t (27) = -1.408, one tail sig. = 0.085, p < 0.10. Hence, H3b was accepted at 0.10 level of significance.

Variations in responses from the four groups were not significant. The two matching groups did not make significantly different judgment in indicating both upper bound and lower bound, p > 0.10. Therefore, H4b was rejected.

On the contrary, the differences between the range indicated by the two mismatching groups (in respect of both upper bound and lower bound) were not significant, (t (26) = -0.801 and -0.288), p > 0.10. Hence, H12b(i) was accepted.

7.4.2 Summary of results of Experiment 1a

In this first section of Experiment 1, the following hypotheses were tested. First, it was hypothesized that individuals with different regulatory foci would make different judgments as a result of their different sensitivities to 'positive' or 'negative' accounting information (H1a). This hypothesis has been rejected by results of testing in the likelihood assessment task (Experiment 1a-1) and the estimation task (Experiment 1a-3). Second, the effect of persuasion fit was expected to improve the persuasiveness of 'hits' messages among promotion focused participants (H2) and the persuasiveness of 'misses' messages among prevention focused participants (H3), therefore, individuals with different regulatory foci will make different judgments (H4). In the assessment of the likelihood of generating target amount (£6,000) from subscriptions (Experiment 1a-1), differences in persuasion fit versus persuasion misfit induced via message framings led to significantly

different judgments among prevention focused participants. The perceived persuasiveness of the 'misses' messages led respondents to indicate lower probability, supporting H3a. Promotion focused individuals, being more persuaded by information presented in the 'hits' framing, indicated significantly higher probability than prevention focused individuals who were more persuaded by information presented in the 'misses' framing. This result supports H4a. Results in the estimation task (Experiment 1a-3) supported the predicted effect of persuasion fit among prevention focused participants (H3b). The effect of persuasion fit was not significant among promotion focus participants (rejecting H2b). The differences in judgments were insignificant between promotion focused and prevention focused participants who received matching messages (rejecting H4b). Third, the two groups receiving messages that mismatched with their regulatory foci made similar judgments in this section. This result supports the hypotheses H12a(i) and H12b(i) that individuals make more careful consideration under the effect of regulatory / persuasion misfit. Forth, regulatory fit was not found to affect participants' confidence in their judgments in the likelihood assessment task, thus rejecting H11a(i).

Apart from the hypotheses testing, responses from each treatment group were compared with the other three groups. The results of the ANOVA analyses (as shown in Table 7.5) confirmed the effect of persuasion fit on prevention focused participants in the likelihood assessment task (H3a). No additional findings were revealed. Furthermore, as shown in Table 7.5, the test of association between applied message framings applied and participants' responses confirmed absence of unanticipated impact of the manipulations.

Table 7.5 Experiment 1a – ANOVA analyses

Experiment 1a	Likelihood assessment		Confidence	Estimation	
	%	Likert scale		Upper bound	Lower bound
Manipulation check					
Manipulations applied in Experiment 1a ('Hits' vs. 'misses' framing)	1.501	0.077	0.014	1.814	0.228
Analysis of differences					
(One treatment group vs. all rest)					
Promotion fit	1.680	0.670	0.011	0.176	0.213
Prevention fit	**3.518***	0.338	1.032	1.419	1.107
Promotion misfit	0.169	0.066	1.337	0.105	0.258
Prevention misfit	0.017	0.222	0.054	1.245	1.036
All treatment groups	1.343	0.645	0.601	0.737	0.640

* significant at 0.10 level (sig. = 0.066)

7.5 Experiment 1b – Donations

Auditors often make predictions based on past events. This section of the experiment was based on a similar situation where the participants were asked to make predictions based on past accounting records. All participants received identical case information in this section of the experiment.

The main material given in this section was a chart of past records of monthly donations received from members and general public. The chart exhibited a skewed distribution with higher probability of higher amounts received monthly. The high peak in the histogram chart signified that most frequently in the past, the club received greater amount of donations, which may be considered as 'positive' information conveyed in the chart; whereas the longer tail indicated that cumulatively, there had been more smaller amounts received monthly, which may be considered as 'negative' information. As hypothesized in this study, individuals will pay selective attention to accounting information received as guided by their regulatory focus orientations (H1). It was thus expected that those primed with promotion focus would be more concerned with the 'positive' information, that is the high peak in the chart in their predictive judgment. Whereas those primed with prevention focus would be more concerned with the 'negative' information, that is the long tail in the chart in the judgment. As a result, differences in regulatory foci would potentially lead to different judgments among individuals (H1a(iii) and (iv)).

Studies on Regulatory Fit have proposed that experience from the task performance will have motivational effect on the performance in the task immediately after (Koenig, Cesario, Molden, Kosloff, and Higgins, 2009). Hence, regulatory fit induced in the first section (Experiment 1a) is likely to continue to impact on judgment in this section. It is also hypothesized that individuals' experience of regulatory fit from processing matching messages in the earlier section will increase their confidence in judgments in this section (H11a(ii)).

7.5.1 Dependent measures and descriptive results

7.5.1.1 Experiment 1b-1: Estimation of total donations received

Participants were informed that they stood at the beginning of the year, and were required to estimate the amount of donations the drama club would receive in the year ahead. The

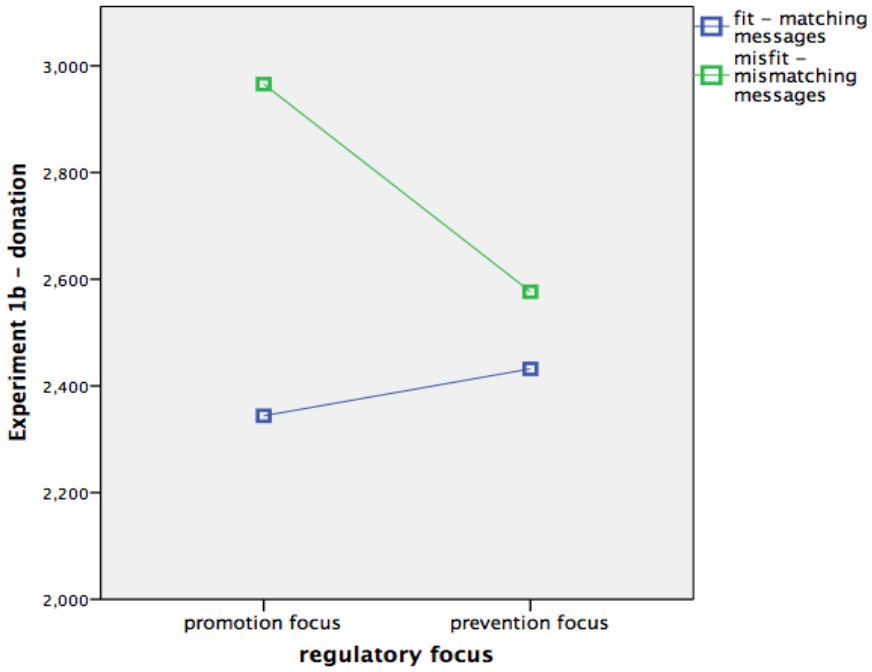
descriptive results are summarized in Table 7.6 and means of responses are exhibited in Figure 7.3.

Table 7.6 Experiment 1b-1 – Estimation of amount of donations received (£)

Estimation of the amount receive (£)		N	Mean	Standard Deviation
Promotion Focus		29	2644	783.278
	Matching	15	2344	699.518
	Mismatching	14	2966	761.029
Prevention Focus		32	2509	681.799
	Matching	15	2432	567.340
	Mismatching	17	2576	780.136
	Total	61	2573	728.788

The mean of responses from promotion focused participants (M = £2,644) was higher than the mean of responses from prevention focused participants (M = £2,509). However, this difference was not significant (t-value = 0.75, sig. = 0.477). This result rejects H1a (iii). The effect of regulatory focus on sensitivity to 'positive' and 'negative' information was not strong enough to establish a significant difference in judgments among individuals.

Figure 7.3 Experiment 1b-1 – Estimation of donations received (£)



Note: Fit groups are those who received matching messages in the subscription section (Experiment 1a) and misfit groups are those who received mismatching messages.

Results revealed the existence of a relationship between responses and regulatory fit / misfit induced earlier in Experiment 1a (see Figure 7.3). Individuals who experienced fit, i.e., the two treatment groups receiving matching messages (in Experiment 1a), made significantly different judgments from those experienced misfit, i.e., the other two groups receiving mismatching messages, F = 4.999, sig. = 0.05.

The differences in experience of regulatory fit and misfit induced in earlier section (Experiment 1a) had significant influence on judgments among promotion focused individuals, F = 5.256, sig. = 0.03. Those promotion focused participants who received mismatching messages earlier gave the highest estimates in this task (M = £2,966) amongst all, F = 5.685, sig. = 0.02. Their estimations were significantly higher than estimations by those who received matching messages earlier (M = £2,344). The pattern of responses by promotion focused participants was in contrast with the pattern observed in earlier section.

Among prevention focused participants, those in the matching group (M = £2,432), who made lower estimation in earlier section (Experiment 1a), also made lower estimation in this task than those in the mismatching group (M = £2,576). This difference was however not significant, $p > 0.10$.

Between the two groups receiving mismatching messages in Experiment 1a, those primed with promotion focus made higher estimations than others primed with prevention focus. The differences in judgments were significant (one-tail sig. = 0.08), $p < 0.10$.

Therefore, the above results suggest that individuals' regulatory fit / misfit induced earlier was carried into this section and affected their judgments. (The observed carry-over effect of regulatory fit / misfit in this task will be discussed later in Section 7.5.2).

7.5.1.2 Experiment 1b-2: Likelihood assessment

The next judgment was to assess the likelihood that the club would get £3,000 from donations received this year. Two measures were taken in relation to this likelihood judgment. Like in Experiment 1a, each participant was asked to rate the likelihood on a scale from 0, 'Certainly Not' to 5, 'Certainly' and after that, to specify a percentage of the probability. Descriptive results are summarized in Table 7.7.

Table 7.7 Experiment 1b-2 – Likelihood assessment of receiving the target amount of donations

	N	Mean (Likert scale)	Mean (%)	Standard Deviation
Promotion Focus	30	2.57	52.67	25.174
Matching	15	2.60	51.53	24.934
Mismatching	15	2.53	53.80	26.236
Prevention Focus	32	2.53	58.84	26.928
Matching	15	2.73	66.87	28.443
Mismatching	17	2.35	51.76	24.155
Total	62	2.55	55.85	26.067

As exhibited in Table 7.7 above, promotion focused participants indicated lower probability in percentage (M = 52.67%) than prevention focused ones (M = 58.84%). The difference was insignificant ($p > 0.10$) and the pattern of responses contradicted with the prediction Hence, H1a(iv) was rejected.

Figure 7.4 Experiment 1b-2 – Likelihood assessment on target amount of £3,000 (%)

Note:
Fit groups are those who received matching messages in the subscription section (Experiment 1a) and misfit groups are those who received mismatching messages.

Responses from prevention focused participants, who received matching messages in earlier section, were significantly different from other groups, F = 3.687, sig. = 0.060, indicating a strong association with regulatory fit / misfit induced earlier in Experiment 1a.

Among promotion focused individuals, earlier experience of regulatory fit did not affect judgment in this task, $F = 0.059$, $p > 0.10$; whereas, among prevention focused participants, those experiencing fit earlier indicated significant higher probability than other experiencing misfit, $t (27.2) = 1.624$, one-tail sig. = 0.057.

The differences in responses between promotion focused and prevention focused individuals induced with regulatory / persuasion fit earlier were significant. The prevention matching group gave the highest estimates amongst all ($t = 1.78$, one tail sig. = 0.048).

Moreover, the two groups that received mismatching messages earlier made similar judgment in this task, $F = 0.957$, $p > 0.10$. The effect of regulatory misfit induced in Experiment 1a was carried into this task, which lessened the effect of difference in individuals' regulatory foci on judgments.

The above results indicate that regulatory fit / misfit induced earlier in Experiment 1a was carried into this task and impacted on participants' judgments. This observed carry-over effect of regulatory fit / misfit in this likelihood assessment task will be discussed later in Section 7.5.2.

7.5.1.3 Experiment 1b-3: Confidence rating

Participants rated their confidence in their judgment on assessing the likelihood of receiving the target amount (£3,000) of donations using Likert scale. Descriptive results were presented in Table 7.8.

Table 7.8 Experiment 1b-3 – Confidence on likelihood assessment

	N	**Confidence (%)**	**Standard deviation**
Promotion focused	30	75.60	16.909
Matching	15	76.93	18.699
Mismatching	15	74.27	15.453
Prevention focused	32	69.69	20.711
Matching	15	75.33	22.715
Mismatching	17	64.71	17.982
Total	62	72.55	19.047

Participants in the promotion focus and matching messages condition were most confident in their judgments amongst all. Their confidence rating was significantly higher (one-tail sig. = 0.035) than the rating by those in the prevention focus and mismatching messages condition, who were least confident amongst all. The rest two groups gave same rating on their confidence (sig. = 0.882). Provided with the same set of information using 'hits' framing in earlier section, participants experiencing fit were more confident in judgment made in this section than others experiencing misfit. Hence, H11a(ii) was accepted.

7.5.2 Summary of results of Experiment 1b

This section of the experiment offered preliminary evidence of the carry-over effect of regulatory fit on persuasiveness of information. As summarized in Table 7.9, the results of 2 x 2 ANOVA analyses suggested association between regulatory / persuasion fit induced in earlier section (Experiment 1a) and participants' responses in this section of the experiment (Experiment 1b).

Table 7.9 Experiment 1b – ANOVA analyses

Experiment 1b	**Estimation**	**Likelihood assessment**		**Confidence** (H11)
		%	**Likert scale**	
Hypotheses testing (Existence of differences)				
Regulatory foci (H1a)	0.521	0.868	0.031	1.504
Carry-over effect of fit vs. misfit	**3.999****	0.957	1.335	2.096
Promotion focused (fit vs. misfit)	**5.256****	0.059	0.054	0.181
Prevention focused (fit vs. misfit)	0.350	2.639	1.838	2.178
All treatment groups	2.153	1.213	0.645	1.400
Analysis of differences (One treatment group vs. all rest)				
Promotion fit	1.999	0.540	0.085	1.050
Prevention fit	0.743	**3.687***	1.107	0.419
Promotion misfit	**5.685****	0.121	0.007	0.159
Prevention misfit	0.001	0.573	1.472	**4.178****

**significant at 0.05 level * significant at 0.10 level

In the first judgment required in this section (Experiment 1b-1), participants induced with regulatory fit earlier in the experiment (given matching messages in Experiment 1a) made significantly lower estimation on the amount of donations received ($F = 3.999$, $p < 0.01$). Promotion focused participants were significantly affected ($F = 5.256$, $p < 0.01$). Those

given messages of 'misses' framing (mismatch setting) in Experiment 1a gave the highest estimates amongst all ($F = 5.685$, $p < 0.01$). Although no effect was found among prevention focused participants on their judgment in the estimation task (Experiment 1b-1) ($F = 0.350$, $p > 0.10$); in the sequential task in this section, to assess the likelihood of receiving target amount of donations (Experiment 1b-2), their previous experience of fit in the last section of the experiment (Experiment 1a) affected their judgment. They believed in a significantly higher likelihood than all rest of participants (one-tail sig. = 0.030, $F = 3.687$, $p < 0.10$). Moreover, supporting H11a(ii), among all four groups, participants in the prevention misfit treatment group were found to be least confident in their likelihood assessment ($F = 4.178$, $p < 0.05$).

The pattern of responses suggested reversed effect of regulatory focus and regulatory fit, indicating possible rebound in judgments among individuals. Promotion focused participants, who were given matching messages, gave higher estimates than others given mismatching messages earlier (in Experiment 1a). In the first estimation judgment, Experiment 1b-1 (in section 7.5.1.1), this group of participants were found to give the lowest estimates amongst all four groups; whilst, responses from those promotion focused participants given mismatching messages earlier were the highest. In the next likelihood assessment task, Experiment 1b-2, a possible rebound in judgments was found among prevention focused participants who were given matching messages in earlier section. They indicated the lowest likelihood of collecting specific amount from donations in Experiment 1a. In contrary, they were found to make the highest estimates in the likelihood assessment task (Experiment 1b-2).

7.6 Experiment 1c – Recommendation

Auditors combine findings and judgments in different sections of the audit works to issue the audit opinion. To simulate a similar judgment, Experiment 1c required participants to make a decision based on the two likelihood assessments in Experiment 1a and 1b. In Experiment 1a, individuals made estimations on the amount to be collected from subscriptions and assessed the collectability of £6,000. In Experiment 1b, they made estimations on the amount to be generated from donations and assessed the likelihood of getting £3,000. In the last section, Experiment 1c, participants were required to make recommendation to the club committee based on the aggregation of judgments made in the previous two sections and in particularly, to judge whether the club could generate £9,000 in total to support the production of more plays.

This judgment should be consistent with the assessments made in the first two sections. The greater the estimation of the amount to be collected from subscriptions and donations / the higher the collectability of targeted amount assessed, the higher chance that participants would recommend the committee to plan for more productions. Hence, different judgment shall be observed.

Participants rated their confidence in their judgments in the two likelihood assessment tasks in Experiment 1a and 1b. In Experiment 1c, they were asked to rate their confidence once more to test the effect of regulatory fit versus misfit induced in this experiment on individuals' confidence in their judgments; and to see whether confidence level had been build up from the first likelihood assessment to the final recommendation. It was expected that individuals, who were more confident in their judgments in earlier likelihood assessment tasks, would also be more confident in making the recommendation in the final judgment.

7.6.1 Dependent measures and descriptive results

Among the total 62 subjects participated in Experiment 1, 17 have reached the conclusion to recommend the committee to plan for more productions, as shown in Table 7.10. Eleven of these 17 participants were primed with prevention focus before entering the experiment and 7 of them were given messages with framing that mismatch with their prevention focus in Experiment 1a. One-forth of promotion focused participants recommended three plays.

Table 7.10 Experiment 1c – Recommendation

		Groups				Total
		Promotion fit	Prevention fit	Promotion misfit	Prevention misfit	
Recommendation	2 plays	12	11	12	10	45
	3 plays	3	4	3	7	17
Total		15	15	15	17	62

Figure 7.5 below represents mean responses, from participants in the four groups, associated to their confidence in the final recommendation. No statistically significant difference was found among treatment groups (see Table 7.12).

Figure 7.5 Experiment 1c – Confidence in judgment (%)

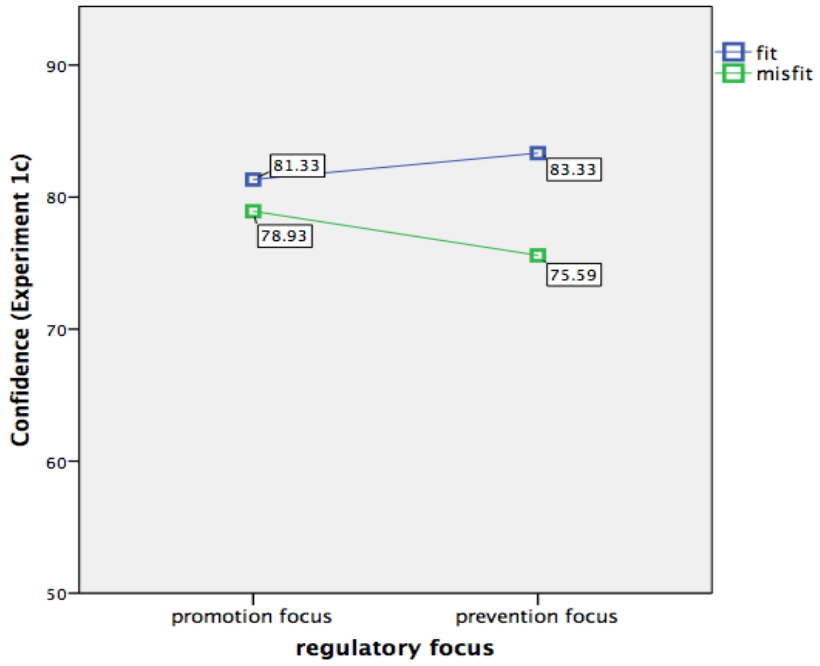


Table 7.11 Correlation between confidence measures across the experiment

Spearman's rho	**Confidence 1**	**Confidence 2**
Confidence 2	0.222 (p = 0.083)	
Confidence 3	0.449*** (p = 0.001)	0.482*** (p = 0.001)

*** significant at 0.01 level **significant at 0.05 level *significant at 0.10 level

As shown in Table 7.11 above, participants' confidence in the final recommendation in this section (Experiment 1c) is correlated with the confidence measures taken in the first two sections of this experiment (Experiment 1a and 1b). That means, the more confident individuals were in either of the first two assessments, the more confident they were in

making the final recommendation. In addition, there was no linear relationship between the confidence rating in Experiment 1a and the one in Experiment 1b.

Analyses on variance were conducted on the data obtained in Experiment 1c. Results are summarized in Table 7.12 below. No significant results were observed in Experiment 1c. Regulatory fit induced by using the method of message matching was not found to increase individuals' confidence in their final recommendation. Hence, H11b(i) was rejected.

Table 7.12 Experiment 1c – ANOVA analyses

Experiment 1c (F-values)	**Recommendation**	**Confidence**
Hypotheses testing		
(Existence of differences)		
Regulatory foci	1.597	0.040
Fit vs. misfit	0.476	1.294
Promotion focused (H2c)	0.001	0.156
Prevention focused (H3c)	0.714	1.260
All treatment groups (H4c)	0.796	0.540
Analysis of differences		
(One treatment group vs. all rest)		
Promotion fit	0.534	0.169
Prevention fit	0.005	0.826
Promotion misfit	0.534	0.032
Prevention misfit	2.236	1.210

7.7 Validity check and robustness

Correlations between the measures taken in each experiment were checked to confirm the logical construction of this experiment (as presented in Table 7.13 below).

Table 7.13 Correlation between measures in Experiment 1 (Spearman's rho)

Experiment 1a	Likelihood rating	Likelihood %	Confidence	Upper bound
Likelihood %	0.694***			
Confidence	-0.013	0.161		
Upper bound	0.634***	0.720***	0.014	
Low bound	0.430***	0.508***	0.047	0.589***

Experiment 1b	Donation	Likelihood rating	Likelihood %
Likelihood rating	0.287**		
Likelihood %	0.309**	0.542***	
Confidence	0.180	0.265**	0.307**

Experiment 1c	Likelihood rating 1a	Likelihood % 1a	Likelihood rating 1b	Likelihood % 1b
Recommendation	0.150	0.143	0.264**	0.433***

*** significant at 0.01 level **significant at 0.05 level *significant at 0.10 level

Using Spearman's rho, it was confirmed that all measures (apart from confidence about the judgment) in Experiment 1a were correlated. If one believed in a higher likelihood of getting £6,000 from subscriptions, their estimations on the amount of the total revenue from subscriptions would also be higher - as indicated by the range. The measures taken in Experiment 1b were also correlated: the higher the estimated amount of donations, the higher the likelihood of getting £3,000 from donations.

The recommendation in Experiment 1c is correlated with the likelihood assessment in Experiment 1b but not the earlier assessment in Experiment 1a. The target amount assessed in Experiment 1a (£6,000) was double of the target amount assessed later (£3,000), which should be of more significance in the final recommendation. The correlation coefficient however revealed a different relationship. This might be explained by a possible recency effect on the final recommendation that participants recall more recent outcome of judgment in making their final recommendation.

The induction of regulatory fit, by matching message framings with individuals' regulatory focus, was implemented in Experiment1a (the subscriptions section). The information content of the case materials used in this experiment was designed to denote equal amounts being collected and yet to be collected. The mean of all responses (in percentage) in the

first required judgment in Experiment 1a (the likelihood assessment task) was 52.39%, which has confirmed that the design of case material has successfully signified an even chance of collectability. In addition, the result of ANOVA analysis and independent t-test rejected the existence of association between messages framings and judgments in this likelihood assessment task (sig. = 0.64).

More robust checks had also been conducted on all required judgments in Experiment 1a and 1b. Statistics (as shown in Table 7.14) confirmed that there was no direct relationship between the message framings and judgments by participants in this experiment. Therefore, it can be concluded that the design and manipulations applied in Experiment 1a is valid in testing the impact of persuasion fit induced using matching messages on persuasiveness of messages.

Table 7.14 Non-parametric – Between the two message framings applied (Experiment 1a)

Dependent Measures	Sig.
1. Likelihood Assessment (%) - collectability of £6,000 from subscription	0.189
2. Confidence about the judgment	0.825
3. High amount of the range	0.273
4. Low amount of the range	0.721

Statistics (shown in Table 7.15) from Mann-Whitney's U test indicated no difference between responses from participants primed with promotion focus and response from others primed with prevention focus, in the measures taken in Experiment 1a. Hence, it can be concluded that differences in regulatory foci of participants did not lead to differences in responses. The hypothesis (H1a) on the direct effect of promotion focus versus prevention focus on judgment can be rejected.

Table 7.15 Non-parametric – promotion vs. prevention focused subjects (Experiment 1a)

Dependent Measures	Sig.
1. Likelihood Assessment (%) - collectability of £6,000 from subscription	0.127
2. Confidence about the judgment	0.419
3. High amount of the range	0.825
4. Low amount of the range	0.901

Taken together, since neither difference in regulatory focus (framed before performing the task) alone, nor the message framings applied were directly related to the responses, it can

been concluded that differences detected between different treatment groups were resulting from the effect of persuasion fit.

Moreover, non-parametric statistics were used to test the distributions of the responses from each treatment group.

Table 7.16 Kruskal-Wallis test of whether the distribution is the same across all 4 groups

Dependent measures	Sig.
1. Likelihood Assessment (%) in Experiment 1a	0.225
2. Confidence on judgment in Experiment 1a	0.751
3. Upper bound of the range in Experiment 1a	0.645
4. Lower bound of the range in Experiment 1a	0.530
5. Estimation on amount of donations in Experiment 1b	0.123
6. Likelihood Assessment (%) in Experiment 1b	0.268
7. Confidence on judgment in Experiment 1b	0.138
8. Confidence on judgment in Experiment 1c	0.878

Results of Kruskal-Wallis test[22] suggest that the distributions of the responses were the same across all treatment groups in Experiment 1 (as shown in Table 7.16 above). Hence, parametric tests (ANOVA and independent t-tests) are appropriate in analyzing responses in this experiment.

[22] Kruskal-Wallis one-way analysis on variance tests the existence of differences among multiple numbers of independent samples whereas Mann-Whitney's U test is for testing on two independent samples.

7.8 Summary and conclusions

Individuals' regulatory focus affects their information processing. Promotion focused individuals attend especially to 'positive' accounting information such as information concerning attained and collectable amounts; whereas prevention focused individuals attend especially to 'negative' accounting information, e.g., information concerning unattained and uncollectable amounts. Regulatory fit intensifies the effects of promotion focus versus prevention focus on information processing and has a persuasiveness effect (persuasion fit) on information processed. Thus, it can be expected that individuals with different regulatory focus will make different judgment under the effect of persuasion fit.

Experiment 1 required participants to make judgment in three related sections to form a final judgment. Participants were presented with messages framed to match with promotion or prevention focus. The priming of regulatory focus adapted methods described in Cesario et al. (2008) (see Section 7.2) that guide subjects to consider motivational reasons intensively by choosing among them in a manner that fitted with promotion or prevention focus. The message framings were adapted from the distinctive gain / hits and loss / misses frames of regulatory focus (Higgins, 1997). Two sets of messages were produced that describe the same position using either 'hits' framing (e.g., half paid) or 'misses' framing (e.g., half not paid yet). 'Hits' framed messages that fit with promotion focus will be considered as more persuasive and thus lead to higher estimation regarding collectable amounts and collectability of target amounts. Prevention focused individuals will be more persuaded by 'misses' framed messages and make lower estimation regarding collectable amounts and collectability of target amounts.

The manipulation of message framings to induce fit and misfit among participants was accomplished in Experiment 1a. The effectiveness of the manipulations applied was confirmed by validity checks (see section 7.7).

A summary of results of hypotheses testing is presented in Table 7.17 (on next page).

In the subscriptions section (Experiment 1a), participants with different regulator foci made different judgments under the effect of persuasion fit in the likelihood assessment task. Promotion focused participants, as more concerned with information pertaining collectability, indicated higher likelihood than prevention focused participants and under the effect of persuasion fit, the differences were significant (one-tail sig. = 0.026). In the

following estimation judgment on collectable amount, persuasion fit was found to improve the persuasiveness of 'misses' messages among participants primed with prevention focus.

Table 7.17 Summary of results of hypotheses testing in Experiment 1

H1: Promotion focused people are more sensitive to and tend to be primarily concerned with 'positive' accounting information; whereas, prevention focused people are more sensitive to and tend to be primarily concerned with 'negative' accounting information.			
H1a: Therefore, individuals with different regulatory foci will make different judgments as a result of differences in their sensitivities to 'positive' versus 'negative' accounting information processed.	Exp 1a-1 Exp 1a-3 Exp 1b-1 Exp 1b-2	H1a(i) H1a(ii) H1a(iii) H1a(iv)	Rejected Rejected Rejected Rejected
H2: Message matching improves the persuasiveness of positive accounting information among promotion focused individuals.			
H2a: in likelihood assessments; and,	Exp 1a-1	H2a	Rejected
H2b: in estimations.	Exp 1a-3	H2b	Rejected
H3: Message matching improves the persuasiveness of negative accounting information among prevention focused individuals.			
H3a: in likelihood assessments; and,	Exp 1a-1	H3a	**Accepted**
H3b: in estimations.	Exp 1a-3	H3b	**Accepted**
H4: The effect of persuasion fit created by message matching affects the persuasiveness of accounting information processed and leads to variations in judgments among people.			
H4a: in likelihood assessments; and,	Exp 1a-1	H4a	**Accepted**
H4b: in estimations.	Exp 1a-3	H4b	Rejected
H11: Individuals are more confident about their judgment when induced with regulatory fit.			
H11a: in likelihood assessment; and,	Exp 1a-2 Exp 1b-3	H11a(i) H11a(ii)	Rejected **Accepted**
H11b: in final recommendation.	Exp 1c	H11b	Rejected
H12: Individuals are likely to take more careful thinking in processing the messages when induced with regulatory misfit, and therefore, there will be no difference between judgments by individuals with different regulatory foci.			
H12a: in likelihood assessments; and,	Exp 1a-1	H12a(i)	**Accepted**
H12b: in estimations.	Exp 1a-3	H12b(i)	**Accepted**

All participants received same case information presented in a histogram in the donations section (Experiment 1b). Differences in judgments among participants were found to be associated with their experience of regulatory fit / misfit induced in earlier section (Experiment 1a). Participants' experience of regulatory fit / misfit in prior task

performance, as manipulated in Experiment 1a, continued to impact on individuals' judgments in Experiment 1b. In the first estimation task, the difference in individuals' earlier experience of regulatory fit versus misfit led to significantly different judgments made (sig. = 0.03) among promotion focused participants. Their responses also signify a possible rebound effect of regulatory fit / misfit being carried into this task. Promotion focused individuals who were induced with fit in prior section made the lowest estimation on the amount of donations to be received among all treatment groups; whereas those induced with misfit made the highest estimation. In the second task (likelihood assessment), a similar rebound in judgments were detected among prevention focused participants. Those who were induced with regulatory fit in prior section suggested the highest probability. The results suggest that regulatory fit and misfit can be carried over to affect later judgments, which may however, have a rebound effect on judgments.

Although H1a concerning the direct effect of regulatory focus on judgments was rejected, responses were congruent with the prediction that promotion focused participants would be more attentive to 'positive' / 'hits' messages; whereas prevention focused participants would be more attentive to 'negative' / 'misses' messages. Hence, the main hypothesis concerning the effect of regulatory focus on individuals' sensitivity to 'positive' or 'negative' accounting information (H1) is supported by results obtained in this experiment.

Participants' confidence in judgments across three sections was correlated. Confidence was building up for those experiencing fit as the experiment progressed, and it was impaired by experience of misfit. Promotion focused participants experiencing fit in Experiment 1a were the most confident in their judgment in Experiment 1b; whereas prevention focused participants who had misfit experience in the early stage were least confident.

In conclusion, the results provide support for the hypothesis that promotion focused and prevention focused individuals made different judgments depending on how relevant information is framed. Consistent with the predictions, messages described in 'hits' framing were more persuasive to individuals primed with promotion focus, which led to higher estimations (on both amount and likelihood); messages described in 'misses' were more persuasive to individuals primed with prevention focus, which led to lower estimations. Hence, the findings suggest that information became more persuasive under the effect of regulatory fit from message matching.

Chapter 8: Experiment 2 – Regulatory focus / regulatory fit and persuasiveness of accounting information: Integral fit

8.1 Introduction

Chapter Seven has reported findings of Experiment 1 that examined the effect of persuasion fit, induced using the method of message matching, on audit judgments. Depending on how the relevant information was framed, promotion focused and prevention focused individuals made different judgments in Experiment 1. This experiment (Experiment 2) employs a different method of regulatory fit induction to examine the effect of regulatory focus and regulatory fit on the perceived persuasiveness of accounting information. It induced regulatory fit integrally by embedding within the required tasks a judgment that encouraged the use of strategic means either to sustain a promotion focus or a prevention focus.

It is hypothesized in this experiment that promotion focused individuals attend especially to 'positive' accounting information, i.e., information concerning attained and collectable amounts; whereas prevention focused individuals attend especially to 'negative' accounting information, i.e., information concerning uncollected and uncollectable amounts (H1). It is likely that differences in regulatory foci may lead to different judgments among individuals (H1a). As an integral part within the task, the adoption of strategic means in task performance that sustains with individuals' regulatory focus will increase the persuasiveness of information consistent with their regulatory focus concerns. Hence, under the effect of persuasion fit, induced integrally, promotion focused participants would be more persuaded by information pertaining amount attained, as it corresponds to their promotion focus concern (H5); whereas prevention focused participants would be more persuaded by information pertaining amount unattained, which corresponds to their prevention focus concern (H6). Therefore, individuals with different regulatory focus can be expected to make different judgments under the effect of persuasion fit (H7). The adoption of disrupting strategic means in task performance will lead to more careful consideration of case information (H12). The experience of fit induced integrally would also make participants more confident about their judgment (H11).

The above hypotheses are tested in this experiment that employs a 2 (regulatory foci) x 2

(eagerness vs. vigilance means) design. Participants were primed with either a promotion focus or a prevention focus at the start of the experiment. It was established in prior research that people prefer to use different strategic means in goal pursuit that fit with their regulatory focus orientation. Hence, manipulations were applied in each section of the required judgments in this experiment to control for the use of either eagerness or vigilant strategic means, integrally, in the task performance. Two fit conditions (promotion focus with eager means, prevention focus with vigilant means) and two misfit conditions (promotion focus with vigilant means, prevention focus with eager means) were produced by crossing these two manipulations. The manipulation tasks were mainly for the purpose of inducing fit. Therefore, they were not expected to affect individuals' judgments in the main part of the experiments (details of these manipulation tasks will be clarified later in this chapter).

Four (2 x 2) sets of research instruments were produced in this experiment by administrating a questionnaire. They were randomly distributed among participants. Ninety-four Accounting and Finance students from University of Glasgow and University of Strathclyde recruited after lectures and tutorials and invited to participate in the experiment. Ninety-one valid responses were collected.

The case materials used in this experiment has been explained in details in Chapter Six. In the case based on a student drama club, each participant was required to assume the role of an independent person who is invited to advice the committee of the club on planning activities of the year after reviewing accounting information in relation to the revenue generation of the club. This is constructed as an analogy to audit that audit opinion is formed based on judgments made from performing audit procedures.

This chapter is structured as follow: The priming method adopted in this experiment is explained in Section 8.2, followed by illustrations of the tasks designed as integral parts within each required judgment to induce regulatory fit in Section 8.3. Section 8.4 – 8.6 reports results of dependent measures in each of the three related sections: Experiment 2a – members' subscriptions (Section 8.4); Experiment 2b – donations (Section 8.5); and Experiment 2c – recommendation (Section 8.6). Results of analysis carried out to confirm the validity of experimental settings and robustness of results is presented in Section 8.7. This chapter is concluded with a summary of results in Section 8.8.

8.2 Priming of regulatory focus

Participants in this experiment were primed with promotion focus or prevention focus when reading the instruction to the experiment (as exhibited in Figure 8.1 below). Utilizing a small prize, a chocolate bar, redeemable at the end of the experiment, both the task and the reward were described either in a promotion focus framing or a prevention focus framing to activate participants' regulatory foci.

Figure 8.1 Instruction – priming of regulatory focus

Promotion focus priming:

It is expected that you will take care to be reasonably confident that the opinion you give is "right".

It would be right: to advise three productions if it is reasonably sure that three productions can be afforded; or conversely, two productions when it is reasonably sure that three productions cannot be afforded.

Everyone who participates in this study will be given a chocolate bar at the end.

However, the advice you give will be compared with the results of a simulation exercises designed to establish benchmarks, and if the quality of your advice is judged favourably, instead of the small chocolate bar normally given to participants you will get a **bigger** standard sized bar.

Prevention focus priming:

It is expected that you will take care to be reasonably confident that the opinion you give is not "wrong".

It would be wrong: to advise two productions if it is reasonably sure that three productions can be afforded; or conversely, three productions when it is reasonably sure that only two productions can be afforded by the club.

Everyone who participates in this study will be given a chocolate bar at the end.

However, the advice you give will be compared with the results of a simulation exercises designed to establish benchmarks, and if the quality of your advice is judged unfavorably, instead of the standard sized chocolate bar normally given to participants you will just get a **"small"** bar.

The priming followed the method adopted in Higgins, Shah and Fridman (1997) that reward (remove punishment for) performance exceeding a certain level to evoke promotion focus (prevention focus). The task was described as to give 'right' opinion in the instruction for promotion focus priming, which is consistent with promotion focus

concerned about achievement and advancement. While in the prevention focus priming version, it was described as to avoid giving 'wrong' opinion, consistent with prevention focus concerned about safety and responsibility.

To strengthen the priming effect, it was also explained in the instruction that the size of the prize each participant would get depends on the quality of the final judgment, though all participants received an identical reward (of the same size). Promotion focused people are sensitive to the absence or presence of gains and positive outcomes (gain vs. non-gain); whereas, prevention focused people are sensitive to the absence or presence of losses and negative outcomes (loss vs. non-loss). For the priming of promotion focus, the redemption of the prize was described as an opportunity to upgrade the size of prize, i.e., to approach gains. Each participant would be rewarded a bigger chocolate bar instead of the standard sized if the quality of judgment made was deemed as favourable – the 'right' opinion. For the priming of prevention focus, the redemption of the prize was described as a threat of downgrading the size of prize, i.e., to avoid losses. Participants would only get a smaller chocolate bar instead of the standard sized if the quality of judgment made was deemed as unfavourable – the 'wrong' opinion.

8.3 Manipulations – the integral task

In order to induce regulatory fit / misfit, participants were instructed to use eager or vigilant means in their task performance in each section of this experiment. Being designed as integral parts in the experiment, the three manipulation tasks were to evaluate information available (in Experiment 2a); to make calculations (in Experiment 2b); and, to assess the strength of a few items of evidence (in Experiment 2c).

Two variations of manipulations were produced and participants were randomly assigned to / distributed with materials, either of the variations consistent throughout the entire experiment. Those assigned to the variation sustaining promotion focus in Experiment 2a received the same variation of manipulation in Experiment 2b and 2c.

These judgments required use of eager means or vigilant means designed to sustain or disrupt individuals' regulatory focus. As fostered by these manipulations in each section of the tasks, it was hypothesized that the resulting effect of integral fit would improve the persuasiveness of information consistent with one's regulatory focus concerns, e.g., 'positive' / 'hits' information about amount attained and collectability of a target amount.

The following of this section explains the manipulation tasks applied in each section of the experiment.

8.3.1 Manipulation task 1 (in Experiment 2a)

The manipulation task 1 in the subscription section (Experiment 2a) was to evaluate predictions of subscription payment collected in the following months – from October to August in the experimental setting.

As shown in Figure 8.2, the total of the predictions for each month added up to 100 subscriptions, which is the exact half of the unpaid subscriptions. This was designed as congruous with the rest of the case information so that all of them indicated equal amount attained / unattained and an even chance of collectability / uncollectability.

Participants were to indicate prediction(s) that called for explanation. Two variations of this judgment were designed in this experiment (see Figure 8.2 on next page).

Figure 8.2 Manipulation task 1 of Experiment 2a

Promotion fit / Prevention misfit:

Number of subscription cash receipts	Oct - Aug						
	Oct	Nov	Dec	Jan	Feb	Mar – Aug	Total
2 Years Ago	28	32	25	7	0	0	
Last Year	34	38	21	9	2	0	
Predicted Current Year	***36***	***30***	***25***	***8***	***1***	***0***	**100**
Especially calls for explanation? **Tick in the box**							

Prevention fit / Promotion misfit (the last row):

Especially calls for explanation? **Circle your indication**	*Yes / No*	*Yes / No*	*Yes / No*	*Yes / No*	*Yes / No*	*Yes / No*	*Yes / No*

Promotion focused individuals apply eager means to ensure making 'hits'. To indicate suspicious items in the table with a tick represents eager approach to hit on the target, which sustains individual's promotion focus. Prevention focused individuals apply vigilant means to avoid making incorrect rejection. To indicate for each item, whether it especially called for explanation, by circling on the option of "Yes" or "No", forces the adoption of vigilant approach to carefully check each item to avoid mistakes, which sustains individual's prevention focus.

The number of suspicious item indicated by participants in this manipulation task was counted. Descriptive results are exhibited in Table 8.1 below.

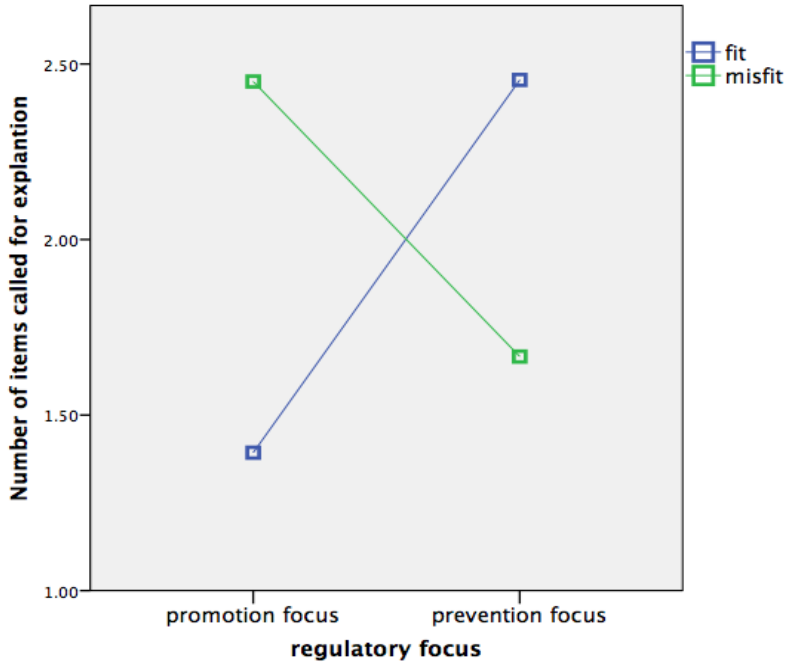
Table 8.1 Manipulation task 1 of Experiment 2a – Number of items called for explanation

		N	Mean	Std. Dev.
Promotion focus		48	1.83	1.226
Tick suspicious items	fit	28	1.39	0.737
Indicate suspicion for each item	misfit	20	2.45	1.504
Prevention focus		43	2.07	1.223
Indicate suspicion for each item	fit	22	2.45	1.184
Tick suspicious items	misfit	21	1.67	1.155
Total		91	1.95	1.223

Results show that applying eager approach, promotion focused participants target on one

or two most suspicious items. Applying vigilant approach, prevention focused participants include more items for consideration. The differences in the number of suspicious items noted were significant as a result of regulator fit among both promotion focused participants ($F = 10.407$, $p < 0.01$) and prevention focused participants ($F = 4.872$, $p < 0.01$).

Figure 8.3 Manipulation task 1of Experiment 2a – Identification of suspicious items



Note:
1. Promotion focus fit group and prevention focus misfit group: to tick suspicious items in the list
2. Prevention focus fit group and promotion focus misfit group: to indicate for each listed item whether it called for explanation

Responses confirmed the success of manipulation that they were significantly related to the variations in manipulation conditions applied, $F = 5.348$, $p < 0.01$ (see Figure 8.3 above). Participants required to indicate for each item whether it called for explanation (vigilant approach) noted more suspicious items ($M = 2.45$) than others who were asked to tick items called for explanation from the list (eager approach) ($M = 1.51$).

There was no association between differences in individuals' regulatory foci and their judgments ($F = 0.846$, $p > 0.10$). Both the means of responses and F statistics suggest that participants primed with promotion focus and those primed with prevention focus indicated the same number of suspicious items. A plausible explanation could be that the requirement to consider each listed item allowed more time for individuals to think carefully, which setting reduced the impact of differences in regulatory foci orientation on

this judgment.

Since responses in the two manipulation tasks, (task 2 in Experiment 2b and task 3 in Experiment 2c), were not as informative as measures taken in manipulation task 1 in Experiment 2a, responses in those two manipulation tasks were not analyzed.

8.3.2 Manipulation task 2 (in Experiment 2b)

In the donations section (Experiment 2b), the relevant information given was on monthly basis, whereas the required judgment was to make estimation or assess collectability of amount on an annual basis. Participants were expected to work out the annual total amount in the process of judgment in other experiments (Experiment 1b and Experiment 3b) in Study 1. In this experiment, this was implemented as a task for manipulation designed to induce fit / misfit.

Participants were to complete a table converting monthly average amount to annual total amount (see Figure 8.4 below). In an ascending order, the table listed in one column, the monthly average amount at a £25 interval starting from £100 up to £400, and in the other column, the corresponding annual total amount. With the middle seven rows left blank, participants were asked to complete the table or to add further points in the table.

Figure 8.4 Manipulation task 2 of Experiment 2b – the conversion table

Annual Total Amount	Monthly Average
£1,200	£100
£1,500	£125
£1,800	£150
£4,200	£350
£4,500	£375
£4,800	£400

For completing the conversion table, participants were to use vigilant means as they had to work out the interval and multiplication correctly and to make sure all grids in the table are filled. Whereas, to include necessary points in the table represents eager means to target on major points (e.g., amount in 50s or 100s).

8.3.3 Manipulation task 3 (in Experiment 2c)

In the final recommendation section (Experiment 2c), participants were to consider a list of items of evidence and to assess their strengths. As shown in Figure 8.5 below, four items were to be reviewed during the club's general meeting. Information related to these items was not necessarily made available in the case materials. Participants were required to consider these items and choose two good evidences / strong factors (that sustained promotion focus) to ensure making correct choice, or to choose two weakest items (that sustained prevention focus) to avoid making incorrect rejection.

Figure 8.5 Manipulation task 3 of Experiment 2c (promotion fit)

Items to be reviewed during the club's general meeting	Tick in the box to indicate your judgment
1. Information concerning cash actually received, in respect of subscriptions and donations, in September.	
2. The treasurer's note of his conversation with the bank manager regarding bank overdraft facilities.	
3. The committee's projections concerning amounts likely to be received in coming months.	
4. Information concerning subscriptions and donations received in previous years.	

8.4 Experiment 2a – subscriptions

After being primed with promotion or prevention focus, each participant started the task by reading a page of financial information about the membership subscriptions of a student drama club in this section of the experiment.

It is hypothesized that individuals pay selective attention to information processed (H1) and the experience of regulatory fit / misfit induced in the manipulation task will influence the perceived persuasiveness of accounting information among promotion focused participants (H5) and prevention focused participants (H6). As a result of the effect of persuasion fit, participants with different regulator foci will reach at different judgments (H7). The experience of regulator fit in performing the tasks will also increase individuals' confidence in their judgments (H11). For those individuals instructed to apply strategic means that disrupt their regulatory focus (induced with misfit), it is expected that the experience of regulatory misfit will lead to more careful and thorough thinking in processing the information and therefore, reduce the impact of the distinct effects of promotion focus versus prevention focus on judgments (H12).

8.4.1 Dependent measures and hypotheses testing

8.4.1.1 Experiment 2a-1: Range of possible amounts

The next judgment in Experiment 2a required participants to give their estimation on the total amount of revenue the club would be able to generate from members' subscriptions by indicating a range of expected amount. Descriptive results are shown in Table 8.2.

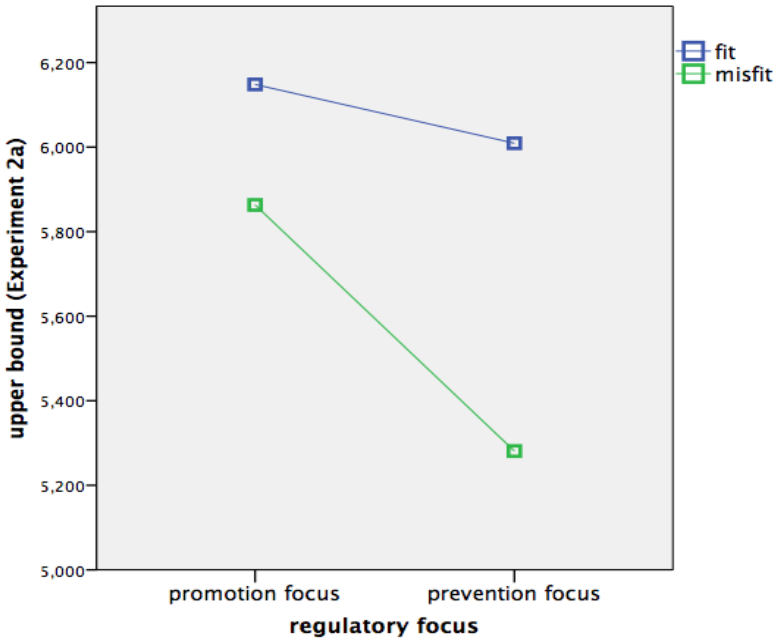
Table 8.2 Experiment 2a-1 – Range of amounts generated from subscriptions (£)

Estimation of the range of amount to be collected (£)		N	Upper bound		Lower bound	
			Mean	Std. Deviation	Mean	Std. Deviation
Group 1	**Promotion fit**	27	6148	749.549	5948	739.215
Group 2	**Prevention fit**	22	6009	728.932	5600	1284.338
Group 3	**Promotion misfit**	19	5863	884.566	5589	980.870
Group 4	**Prevention misfit**	21	5281	696.864	4819	782.061
	Total	89	5848	821.046	5519	1032.965

Differences in responses from promotion focused participants and prevention focused

participants were significant in indicating both the upper bound, F = 4.892, p < 0.05, and the lower bound, F = 7.566, p < 0.01. Hence, H1a(v) was accepted. Promotion focused participants made higher estimations in indicating the range. This result supports the hypothesized effect of regulatory focus on sensitivity to accounting information that individuals are more concerned with information consistent with their regulatory focus concerns (H1).

Figure 8.6 Experiment 2a-1 – Estimation of subscriptions to be collected (upper bound) (£)



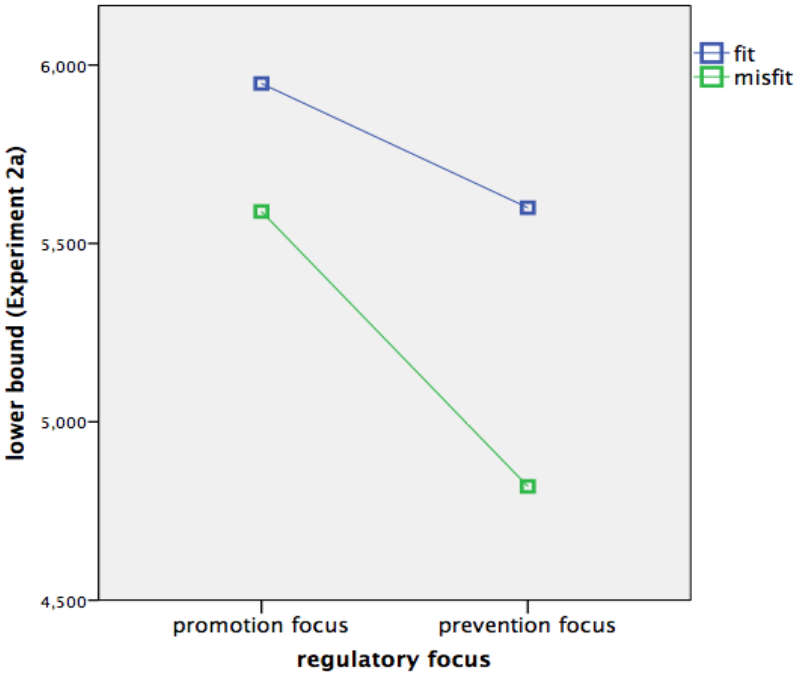
Note:
1. Promotion focus fit group and prevention focus misfit group: required to tick suspicious items in the list in the manipulation task
2. Prevention focus fit group and promotion focus misfit group: required to indicate for each listed item whether it called for explanation in the manipulation task

Integral fit was found to affect the estimations by participants (see Figure 8.6). Promotion focused participants under fit condition made higher estimations than those under misfit condition, on average. The difference in responses between the two promotion focused groups were significant in indicating the lower bound of the range (M = £5,948 and £5,589, sig. = 0.089, p < 0.10). Hence, H5b(i) was accepted. It is also as predicted that, under fit condition, promotion focused participants made the highest estimation on the upper bound (M = £6,148) and the lower bound (M = £5,948, sig. = 0.003, p < 0.01) among all. This result supports the hypothesized effect of persuasion fit on judgments that individuals with different regulatory foci make different judgments (H7b(i)).

Prevention focused participants, in indicating the upper bound, made significantly lower estimates under misfit condition (M = £5,281) than those under fit condition (M = £6,009),

t-value = 2.394, $p < 0.05$. The same pattern was found for the lower bound (see Figure 8.7), t-value = 3.345, $p < 0.01$. Although the result suggests significant differences in judgments by prevention focused participants under the effect of persuasion fit versus misfit, the pattern of responses from prevention focused participants contradicted the prediction. Hence, H6b(i) was rejected.

Figure 8.7 Experiment 2a-1 – Estimation of subscription to be collected (lower bound) (£)



Note:
1. Promotion focus fit group and prevention focus misfit group: required to tick suspicious items in the list in the manipulation task
2. Prevention focus fit group and promotion focus misfit group: required to indicate for each listed item whether it called for explanation in the manipulation task

Moreover, responses from the two misfit groups were significantly different, $p < 0.05$ (sig. = 0.026 for upper bound and sig. = 0.009 for lower bound), rejecting H12b(ii).

8.4.1.2 Experiment 2a-2: Likelihood assessment

In this task, participants were required to assess the likelihood of generating £6,000 from subscriptions by choosing among nine distribution curves the one that best fit with their judgment.

It has been explained in Chapter Six (the chapter that introduces the research instruments used in Experiment 1, 2 and 3) that participants in this experiment were presented with a

diagram showing nine distribution curves (as shown in Figure 6.4). Variations were products produced by three varieties of skewness (positive / right-tail, normal, and negative / left-tail) and three levels of density (high, moderate and low) (see Figure 6.5 for a list of the nine variations). Density represents variances of the distribution, i.e., high density indicates small variances. Positively skewed distribution demonstrated a higher probability of collecting smaller amounts; whereas negatively skewed distribution demonstrated a higher probability of collecting greater amounts.

Participants were instructed to apply their estimations in the last task as an indication of the "most likely" amount to be collected, which was taken as the norm in the distribution. To make this measure comparable, the data was logically coded in relation to the skewness of the chosen curve[23]. The choice of any of the three negatively skewed distributions was coded as "3, highly likely"; the choice of any normal distributions was coded as "2, less likely"; and, the choice of any positively skewed distribution was coded as "1, unlikely".

The descriptive results after coding were exhibited in Table 8.3 below and means of responses (after coding) are exhibited in Figure 8.8 (on next page).

Table 8.3 Experiment 2a-2 – Likelihood assessments (data recoded)

Likelihood assessment		**N**	**Mean**	**Std. Deviation**
Group 1	Promotion fit	28	1.79	0.917
Group 2	Prevention fit	22	2.00	0.817
Group 3	Promotion misfit	20	1.45	0.686
Group 4	Prevention misfit	21	1.29	0.463
	Total	91	1.65	0.794

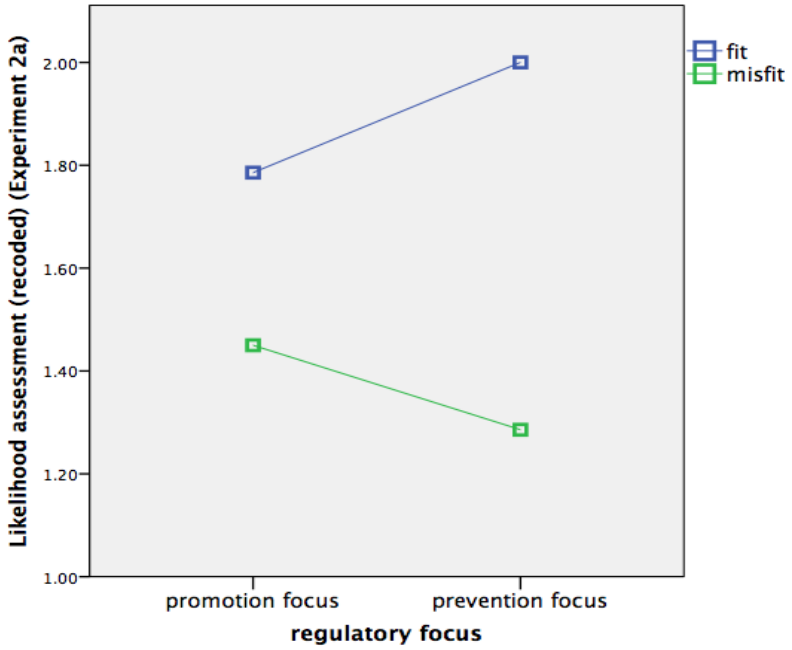
Using this measurement, it was found that subjects in different treatment groups made significantly different judgment in this likelihood assessment, $F = 3.946$, $p < 0.01$. Hence, H7a(i) was accepted.

Differences in participants' regulatory foci were not found associated with variation in responses in the task, $F = 0.001$. Hence, H1a(vi) was rejected.

[23] Skewness offered a sensible measure of the likelihood indicated by subjects. The variation in density of the curves was not coded. The inclusion of density was just to offer a wider variation of shapes of the curves.

Promotion focused participants who were induced with regulatory fit believed in higher collectability of target amount (£6,000) from subscriptions than those induced with misfit (t (45.4) = 1.469, one-side sig. = 0.074, p < 0.10). This result indicated a significant effect of persuasion fit on promotion focused participants in this judgment. Hence, H5a(i) was accepted.

Figure 8.8 Experiment 2a-2 – Likelihood assessment (recoded)



Note:
1. Promotion focus fit group and prevention focus misfit group: required to tick suspicious items in the list in the manipulation task
2. Prevention focus fit group and promotion focus misfit group: required to indicate for each listed item whether it called for explanation in the manipulation task

There was a strong associated between judgments by prevention focused participants and their experience of regulatory fit / misfit (F = 11.191, p < 0.01). Prevention focused participants believed in higher collectability under the effect of persuasion fit than others induced with regulatory misfit (t (33) = 3.526, p < 0.01). Although the effect of persuasion fit was found significant among prevention focused participants, the pattern of their responses was in contrary with the prediction that prevention focused individuals would be more persuaded by 'negative' accounting information and give lower estimates. Thus, H6a(i) was rejected.

The two misfit groups responded differently in this required judgment (F = 5.523, p < 0.05). This rejects the hypothesis concerning the effect of regulatory misfit (H12a(ii)) that is expected to lessen the effect of differences in individuals' regulatory foci.

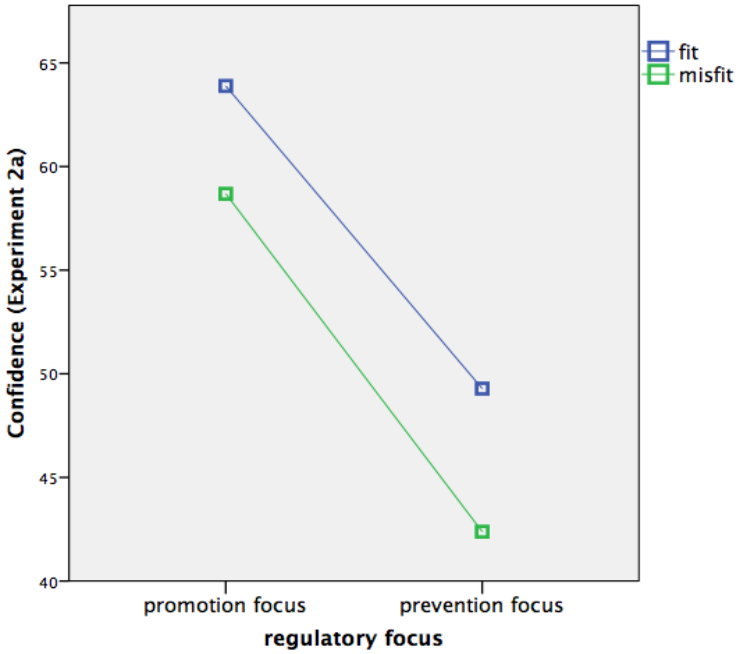
8.4.1.3 Experiment 2a-3: Confidence rating

Participants indicated their confidence in their judgment in the likelihood assessment task. The descriptive results are summarized in Table 8.4 and means of responses of each treatment groups are presented in Figure 8.9.

Table 8.4 Experiment 2a-3 – Confidence rating (%)

	Confidence	N	Mean	Std. Deviation
Group 1	Promotion fit	27	63.89	19.282
Group 2	Prevention fit	21	49.29	26.939
Group 3	Promotion misfit	19	58.68	22.782
Group 4	Prevention misfit	21	42.38	27.911
	Total	88	54.15	25.248

Figure 8.9 Experiment 2a-3 – Confidence (%)



Note:
1. Promotion focus fit group and prevention focus misfit group: required to tick suspicious items in the list in the manipulation task
2. Prevention focus fit group and promotion focus misfit group: required to indicate for each listed item whether it called for explanation in the manipulation task

Participants in different treatment groups indicated different confidence ratings ($F = 3.625$, $p < 0.05$). Participants in promotion fit group ($M = 63.89\%$) were most confidence in their estimation and those in prevention misfit group ($M = 42.38\%$) were found least confidence.

The variations in confidence ratings among different groups were significant ($F = 3.625$, $p < 0.05$). Promotion focused participants were found to be more confident in their likelihood assessment judgments than prevention focused participants ($F = 9.571$, $p < 0.01$).

However, the association between participants' confidence in judgments and differences in regulatory fit versus misfit induced was not significant ($F = 1.880$, $p > 0.10$). The effect of regulatory fit on individuals' confidence ratings was also found to be insignificant among promotion focused ($F = 0.699$, $p > 0.10$) and prevention focused participants ($F = 0.665$, $p > 0.10$). Therefore, H11a(iii) was rejected.

8.4.2 Summary of results of Experiment 2a

Result from ANOVA analyses (as summarized in Table 8.5) suggest significant variations in responses amongst treatment groups across all measures in this section of the experiment (Experiment 2a).

Table 8.5 Experiment 2a – ANOVA analyses

Experiment 2a	Estimation		Likelihood assessment (recoded)	Confidence (H11)
	Upper bound	**Lower bound**		
Hypotheses testing (Existence of differences)				
Regulatory foci (H1a)	**4.892****	**7.566*****	0.001	**9.571*****
Fit vs. misfit	**10.053*****	**8.224*****	**10.435*****	1.880
Promotion focused (fit vs. misfit) (H5)	1.389	2.002	1.910	0.699
Prevention focused (fit vs. misfit) (H6)	**11.191*****	**5.732****	**12.291*****	0.665
All treatment groups (H7)	**5.580*****	**5.602*****	**3.946****	**3.625****
Between misfit groups (H12)	**5.399****	**7.614*****	0.815	**4.042***
Manipulation check (Existence of differences in groups)				
Eagerness vs. vigilant means	0.978	0.409	0.996	0.018

***significant at 0.01 level **significant at 0.05 level *significant at 0.10 level

In this first section of Experiment 2, the following hypotheses were tested. First, it was hypothesized that individuals with different regulatory foci would make different judgments as a result of their different sensitivities to 'positive' or 'negative' accounting information (H1a). This hypothesis was accepted in the estimation task (Experiment 2a-1)

but rejected by the results of testing in the likelihood assessment task (Experiment 2a-2). Results (as shown in Figure 8.5) suggested a strong effect of differences in individuals' regulatory foci on responses in the first estimation judgment (both lower bound and upper bound responses).

Second, individuals' experience of regulatory fit is hypothesized to improve the persuasiveness of 'positive' accounting information among promotion focused participants (H5) and the persuasiveness of 'negative' accounting information among prevention focused participants (H6). Hence, individuals with different regulatory foci can be expected to make different judgments (H7).

Results of the estimation task (Experiment 2a-1) suggest that individuals with different regulatory foci make different judgments (accepting H7b(i)). Significant variations in responses from different treatment groups were found in the two measures taken in this task (upper bound and lower bound) ($F = 5.58$ and 5.602, $p < 0.01$). The proposed effect of persuasion fit was not found significant among promotion focused individuals (rejecting H5b(i)), whereas it was found to have strong influence on responses by prevention focused participants ($F = 11.191$ and 5.732, $p < 0.01$). However, since the responses were in contradiction with the prediction, (thus, H6b(i) was rejected). A possible explanation for this result may be that information given in the manipulation task 1 (see Figure 8.2 in Section 8.3.1) – the predicted number of subscription payments to be received in the following months had been referred by some participants as relevant information in their estimation judgment. The prediction given in manipulation suggested a total expected amount of £6,000 to be collected. Both promotion focused and prevention focused group, who were induced with fit, felt 'right' about the prediction and thus, estimated the amount to be collected at around £6,000. Whereas those induced with misfit felt 'wrong' about the prediction so that their judgments were less affected by the predicted figures.

In the assessment of the likelihood of generating target amount (£6,000) from subscriptions (Experiment 2a-2), participants indicated their judgment by choosing the distribution curve that best fit with their judgment. After converting the choices made (among 9 variations of distribution curves) to likelihood rating using 3-point scale ("3 – highly likely", "2 – less likely" and "1 – unlikely"), a significant persuasion fit effect was found on responses from prevention focus participants ($F = 12.291$, $p < 0.01$); whereas statistics suggested no effect on promotion focus participants ($p > 0.10$). Thus, H6a(i) was accepted and H5a(i) was rejected. The existence of significant variations in responses from different treatment

groups supports the hypothesized effect of persuasion fit that lead individuals with different regulatory foci to make different judgments (accepting H7a(i)). Again, results in the likelihood assessment task might be affected by additional information given in the manipulation task, which suggested an expected amount of £6,000 to be collected. The two fit groups both believed in higher likelihood of generating greater amount than others under misfit ($F = 10.435$, $p < 0.01$). Those induced with regulatory fit felt 'right' about the predicted figures and suggested high collectability; whereas those induced with regulatory misfit felt 'wrong' about the prediction and suggested lower collectability.

Third, participants in different treatment groups indicated different ratings of their confidence in their judgments in the likelihood assessment task. However, no association was found between participants' confidence ratings and their experience of regulatory fit versus misfit. Thus, H11a(iii) was rejected.

Forth, the two groups induced with regulatory misfit made different judgments in this section, which result rejected the hypothesis (H12) that individuals made more careful consideration under the effect of regulatory misfit.

The effectiveness of manipulation task 1 has been checked earlier in Section 8.3.1. Participants' responses in this manipulation task have confirmed success of regulatory fit versus misfit inductions. To check for unanticipated effects of manipulations applied, it was tested whether participants' responses in this section were associated with the two versions of manipulation tasks (being instructed to apply either eager means or vigilant means). As shown in the last row in Table 8.5, no association was suggested by the statistics.

In conclusion, it is sensible to conclude that the induction of regulatory fit / misfit had been successful, whereas results in Experiment 2a might have been affected by additional information given in the manipulation – predictions on subscription payments to be collected. Since, predictions made by the committee of the club may not be a reliable source of information, it can be inferred from the above results that information processed in fit manner unduly affects participants' judgment.

8.5 Experiment 2b – Donations

In this section of the experiment (Experiment 2b), participants were provided with a negatively skewed histogram depicting the frequency, in terms of number of months, that particular amounts of monthly donations were received over the past 10 years. The chart indicates that the club most often received high amounts of donations monthly, which may be considered as 'positive' information; while cumulatively, there were more months over the past 10 years that a smaller amount was received, which may be considered as 'negative' information. It is hypothesized that individuals will pay selective attention to 'positive' or 'negative' accounting information received as guided by their regulatory focus orientations (H1) and this effect is likely to lead to different judgment (H1a).

The first required judgment was designed as a manipulation task that instructed individuals to apply either eager strategic means or vigilant strategic means that sustained or disrupted with their regulator foci. The manipulation task has been explained earlier in this chapter (in Section 8.3.2).

Participants were then required to make an estimation of the total amount of donations to be received (Experiment 2b-1); to assess the likelihood of receiving the specific amount from donations (Experiment 2b-2); and to indicate their confidence in judgments made in the likelihood assessment task (Experiment 2b-3). Regulatory fit induced can be expected to influence the persuasiveness of the accounting information, as presented in the chart, perceived by promotion focused (H5) and prevention focused participants (H6). As a result, individuals with different regulatory focus will reach different judgment in this section (H7); whereas regulatory misfit would lessen the effect of difference in participants' regulatory foci (H12). The experience of regulatory fit shall also increase participants' confidence in their judgments (H11).

8.5.1 Dependent measures and hypotheses testing

8.5.1.1 Experiment 2b-1: Estimation of total donations received

After the manipulation task to fill in the conversion table between monthly average amount and annual total amount (see Figure 8.4), participants estimated the amount of donation that would be received in the year.

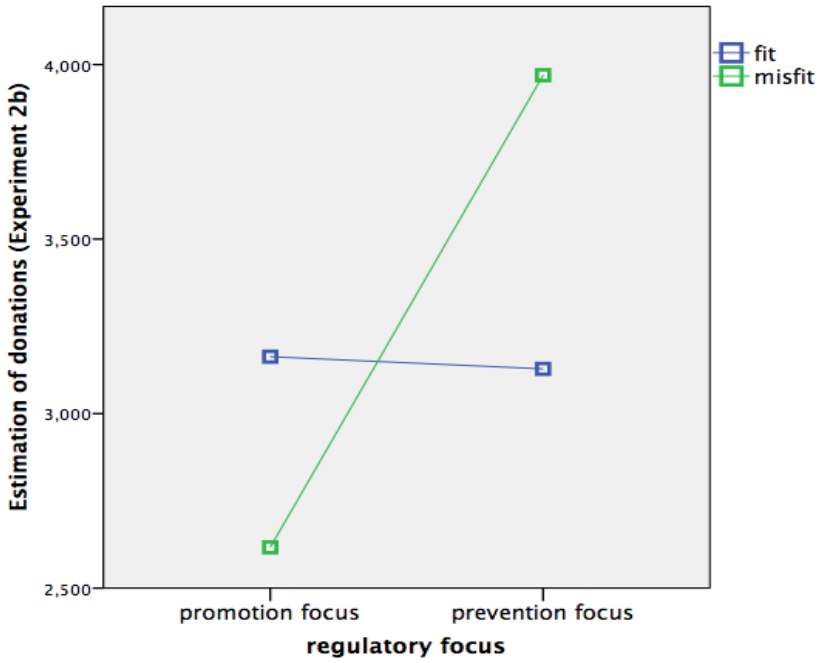
The descriptive results are summarized in Table 8.6 and the means of responses are plotted in Figure 8.10 below.

Table 8.6 Experiment 2b-1 – Estimation of amount of donations received (£)

Estimation of amount of donations received (£)		N	Mean	Std. Deviation
Group 1	**Promotion fit**	26	3163	922.357
Group 2	**Prevention fit**	16	3128	732.796
Group 3	**Promotion misfit**	19	2617	398.456
Group 4	**Prevention misfit**	19	3969	1703.439
	Total	80	3218	1137.483

Promotion focused participants and prevention focused participants made significantly different judgments in this task ($F = 6.966$, $p < 0.01$). Hence, H1a(vii) was accepted.

Figure 8.10 Experiment 2b-1 – Estimation of donations received (£)



Note:
1. Promotion focus fit group and prevention focus misfit group: required to include necessary points in the table converting monthly average amount to annual total amount
2. Prevention focus fit group and promotion focus misfit group: required to complete the entire table

Although responses across four treatment groups were statistically different ($F = 5.343$, $p < 0.01$), H7b(ii) is rejected as responses from promotion focused participants (M = £3,163) and prevention focused participants (M = £3,128) were statistically the same.

The difference in judgments between those induced with regulatory fit and others induced with regulatory misfit was found significant among promotion focused participants ($F = 5.838$, $p < 0.05$), and prevention focused participants ($F = 3.366$, $p < 0.10$). The statistics suggested strong impact of regulatory fit versus misfit on responses in this task.

It was expected that, as a result of persuasion fit effect, promotion focused participants would be more persuaded by the high peak in the chart and would give higher estimation in their predictive judgment (H5b(ii)); whereas prevention focused participants would be more persuaded by the long tail in the chart under integral fit and would give lower estimations (H6b(ii)). This prediction is confirmed by the results, among promotion focused participants ($t (36) = 2.694$, sig. $= 0.001$, $p < 0.01$); and among prevention focused participants ($t (33) = 1.835$, one-tail sig. $= 0.038$, $p < 0.05$). Therefore, H5b(ii) and H6b(ii) were accepted.

Among participants who were induced with regulatory misfit, prevention focused participants made much higher estimations (M = £3,969) than promotion focused participants (M = £2,617) ($t (43) = -2.044$, sig. $= 0.047$, $p < 0.05$). The significant difference in responses rejected H12b(iii).

8.5.1.2 Experiment 2b-2: Likelihood assessment

The next judgment in this section was to assess the probability of the club to get £3,000 from donations received this year.

Participants' likelihood assessment in respect of the amount to be received was first measured using the same method as in Experiment 2a-2, i.e., they were to choose a distribution curve that best fits their judgment. The same coding method was employed to analyze the data (see Section 8.4.1.2). However, statistics suggest that participants' responses were not associated with their experience of regulatory fit versus misfit or their regulatory foci[24].

The following analyses are based on the responses in this task indicated in percentage.

[24] The case information provided was also in the form of a distribution histogram. It was anticipated that participants might simply choose the curve similar to the shape of the chart given in the case, whereas results did not support this prediction.

The descriptive results are summarized in Table 8.7 and means of responses from each treatment group were plotted in Figure 8.11 below.

Table 8.7 Experiment 2b-2 – Likelihood assessment of receiving target amount of donations (%)

Likelihood of getting £3,000 (%)		N	Mean	Standard Deviation
Promotion Focus		44	52.11	26.034
	fit	26	56.04	25.781
	Misfit	18	46.44	26.064
Prevention Focus		32	51.56	22.136
	fit	13	37.15	18.013
	Misfit	19	61.42	19.366
Total		76	51.88	24.315

It was expected that promotion focused individuals would attend more to the high peak in the chart, the 'positive' information; whereas prevention focused individuals would attend more to the long tail, the 'negative' information. No significant difference in responses was found between promotion focused participants and prevention focused participants ($p > 0.10$), which rejected H1a(viii).

Figure 8.11 Experiment 2b-2 – Likelihood assessment of collecting target amount (£3,000) (%)

Note:
1. Promotion focus fit group and prevention focus misfit group: required to include necessary points in the table converting monthly average amount to annual total amount
2. Prevention focus fit group and promotion focus misfit group: required to complete the entire table

All four groups responded in the same way as predicted. Among promotion focused

subjects, those experienced regulatory fit indicated higher probability (M = 56.04%) than others experienced regulatory misfit (M = 46.44%) on average. However, since this difference was not significant, $p > 0.10$, H5a(ii) was rejected. Among prevention focused participants, those induced with regulatory fit indicated significant lower probability (M = 37.15%) than others induced with regulatory misfit (M = 61.42%, $F = 12.811$, $p < 0.01$, $t(26.7) = -3.63$, sig. = 0.01). Thus, H6a(ii) was accepted. Furthermore, responses from the four treatment groups were significantly different ($F = 3.420$, $p < 0.05$). The difference in responses from the two groups induced with regulatory was also significant ($t(32.2) = 2.658$, $p < 0.01$). Hence, H7a(ii) was accepted.

Promotion focused and prevention focused participants who were induced with misfit made significantly different judgments in this task ($t(30.8) = -1.976$, $p < 0.05$). Hence, H12a(iii) was rejected.

8.5.1.3 Experiment 2b-3: Confidence rating

Participants rated their confidence in their judgment on assessing the likelihood of receiving the target amount (£3,000) of donations. Participants in the promotion fit condition indicated the highest confidence rating on average amongst all (M = 57.12%). Those in the prevention fit condition were also more confident (M = 50.71%) than prevention misfit group (M = 43.95%) on average.

The variations in responses were however insignificant ($p > 0.10$), suggesting no association of regulatory fit versus misfit on individuals confidence in their judgments in the likelihood assessment task. Thus, H11a(v) was rejected.

8.5.2 Summary of results of Experiment 2b

In this section of the experiment (Experiment 2b), participants were instructed to apply strategic means that either sustained or disrupted their regulatory focus orientation, and were then required to make estimations of the amount of donations to be collected (Experiment 2b-1); to assess the likelihood of receiving the specific amounts (£3,000) of donations (Experiment 2b-2); and to rate their confidence in the likelihood assessment judgment (Experiment 2b-3).

The results of ANOVA analyses were summarized in Table 8.8 below.

Table 8.8 Experiment 2b – ANOVA analyses

Experiment 2b	**Estimation**	**Likelihood assessment** (recoded from distribution)	**Likelihood assessment** (on target amount)	**Confidence** (H11)
Hypotheses testing (Existence of differences)				
Regulatory foci (H1a)	**6.966*** **	0.106	0.009	1.238
Fit vs. Misfit	0.314	0.381	0.616	1.936
Promotion focused (fit vs. misfit) (H5)	**5.838** **	0.782	1.460	1.100
Prevention focused (fit vs. misfit) (H6)	**3.366***	0.009	**12.811*** **	0.456
All treatment groups	**5.343*** **	0.325	**3.420** **	0.916
Between misfit groups	**11.259** **	0.630	**3.965***	0.236
Manipulation check (Existence of differences)				
Eagerness vs. vigilant means	**6.979*** **	0.591	**8.484*** **	0.167

***significant at 0.01 level **significant at 0.05 level *significant at 0.10 level

In the estimation task (Experiment 2b-1), differences in regulatory foci were found to have significant impact on responses ($F = 6.966$, $p < 0.01$). This result supports the hypothesis that differences in regulatory foci lead to differences in judgment made among individuals (H1a(vii)). Promotion focused participants who were induced with regulatory fit, gave higher estimates than others induced with regulatory misfit (accepting H5b(ii)); among prevention focused participants, those induced with regulatory fit also gave higher estimates than others induced with regulatory misfit (rejecting H6b(ii)). Integral fit induced in this experiment was found to have a strong persuasion effect on individuals' judgments in this task, $F = 5.343$, $p < 0.01$ (accepting H7b(ii)).

In the likelihood assessment task (Experiment 2b-2), no association was found between participants' regulatory foci and their responses (rejecting H1a(viii)). Promotion focused participants induced with regulatory fit or misfit made similar judgments in this task, rejecting the hypothesized effect of persuasion fit among promotion focused individuals (H5a(ii)); whereas the effect of persuasion fit was significant on responses from prevention focused participants that those induced with regulatory fit indicated lower likelihood (accepting H6a(ii)). The difference in judgments by the two groups induced with regulatory fit was significant ($p < 0.01$) (see results reported in Section 8.5.1.2) (accepting H7a(ii)). Significant variations in responses among all treatment groups also confirms the effect of persuasion fit that leads to differences in judgments among participants.

The two misfit groups made different judgments in both tasks ($p < 0.10$), thus rejecting H12a(iii) and H12b(iii).

The results on the association between participants' experience of regulatory fit versus misfit and their confidence in their likelihood assessment rejected the hypothesis that regulatory fit increases individuals' confidence in judgments made (rejecting H11a(v)).

Strong association was found, in the first two tasks in this section (Experiment 2b-1 and 2b-2), between participants' responses and the strategic means they had applied in the tasks ($p < 0.01$). No additional information was given in the manipulation in this section of the experiment (Experiment 2b). It was found in the estimation task (Experiment 2b-1) that judgments by the two groups induced with regulatory fit were very close to £3,000; whereas the two misfit groups made judgment significantly deviated from £3,000[25]. This amount is the same as the midpoint included in the conversion table used in manipulation (the conversion table is shown in Figure 8.4 in Section 8.3.2).

Regulatory fit theory suggests that feeling of 'rightness' generated from the regulatory fit potentially informs and affects whatever individuals are evaluating at that moment (Cesario and Higgins, 2008). Participants might have applied the midpoint £3,000 as a reference point in their judgment resulting from the feeling of 'rightness' about materials processed in the manipulation (the amounts listed in the conversion table). Those induced with misfit generated a feeling of 'wrongness' in the manipulation so that their judgments were not significantly influenced by the material used in manipulation.

[25] T-test was carried out to compare means of responses from treatment groups with the amount of £3,000 the midpoint in the table. Statistics suggests 37.6% chance for promotion fit group ($t(25) = 0.901$), and 49.5% chances for prevention fit group ($t(15) = 0.699$), that their responses equal £3,000. Promotion misfit group ($t(18) = -4.190$, $p < 0.01$) and prevention misfit groups ($t(18) = 2.480$, $p < 0.05$) made judgments that are significantly different from £3,000.

8.6 Experiment 2c – Recommendation

After assessing information in relation to the two main sources of funds of the club, participants were asked to advice the committee on the planning activities. In Experiment 2a and 2b, individuals gave estimates of the amounts to be collected from subscriptions and donations. It was instructed that their final recommendation of the number of productions depended on the possibility of generating a total amount of £9,000 from subscriptions and donations.

In this section of the experiment (Experiment 2c), participants first performed in the last of the manipulation tasks. (See Section 8.3.3 for details of this manipulation task 3.) This manipulation task was to assess the strength of a list of items of evidence by picking the two strongest items of evidence, which sustains promotion focus; or by picking the two weakest items of evidence, which sustains prevention focus. After that, they read about information about the deficit between ticket sales and costs of each production. They were then required to indicate their final recommendation – either suggesting 2 plays or 3 plays, and then rate their confidence in their judgments.

8.6.1 Dependent measures and descriptive results

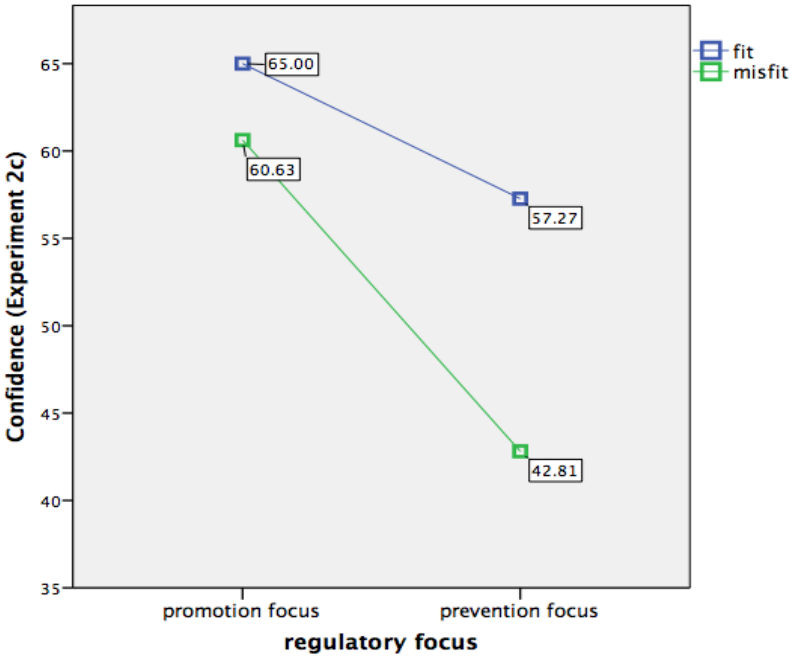
As shown in Table 8.9 below, among the total 70 subjects completed the final task in this experiment (Experiment 2), 20 of them had reached the conclusion to recommend the committee to plan for more productions – 3 plays. Half of them were primed with promotion focus before entering the experiment (7 induced with regulatory fit and 3 induced with regulatory misfit) and the other half of them were primed with prevention focus (3 induced with regulatory fit and 7 induced with regulatory misfit). On average, induced with regulatory fit, promotion focused participants were more likely to recommend less plays – 2 plays (N = 23) than prevention focused participants (N = 7).

Table 8.9 Experiment 2c – Recommendation

Recommendation	**Groups**				**Total**
	Promotion fit	Prevention fit	Promotion misfit	Prevention misfit	
2 plays	15	3	8	4	30
3 plays	7	3	3	7	20
No opinion	4	5	6	5	20
Total	26	11	17	16	70

Participants rated their confidence for their judgments in the likelihood assessment tasks in the subscriptions section (Experiment 2a) and in the donations section (Experiment 2b). In this section (Experiment 2c), they were asked to rate their confidence once more to see whether the confidence level had been build up from the first estimation to the final recommendation. The means of responses from the four treatment groups are exhibited in Figure 8.12.

Figure 8.12 Experiment 3c – Confidence in judgment (%)



Note:
1. Promotion focus fit group and prevention focus misfit group: required to pick the two strongest items of evidence
2. Prevention focus fit group and promotion focus misfit group: required to pick two weakest items of evidence

Participants' confidences in the three related sections should be correlated. As shown in Table 8.10 below, all three confidence ratings measured were perfectly correlated. That means, the more confident individuals were in the first two assessments, the more confident they were in making the final recommendation.

Table 8.10 Correlation between confidence measures across the experiment

Spearman's rho	**Confidence 1**	**Confidence 2**
Confidence 2	0.670*** (p = 0.001)	
Confidence 3	0.754*** (p = 0.001)	0.663*** (p = 0.001)

*** significant at 0.01 level

Analyses on variance were conducted on the data obtained in Experiment 2c. They were summarized in Table 8.11 below, showing the F-values of the test results.

Table 8.11 Experiment 2c – ANOVA analyses

Experiment 2c	**Recommendation**	**Confidence** (H11)
Hypotheses testing (Existence of differences)		
Regulatory foci	**3.951***	**5.218****
Fit vs. misfit	0.472	**2.976***
Promotion focused (fit vs. misfit)	0.068	0.284
Prevention focused (fit vs. misfit)	0.268	2.014
All treatment groups	1.394	**2.519***
Between misfit groups	**3.077***	2.811
Manipulation check (Existence of differences in groups)		
Eagerness vs. vigilant means	0.229	0.167

**significant at 0.05 level *significant at 0.10 level

Recommendations by participants (2 plays or 3 plays) were related with their regulatory foci, and this association was marginally significant at 0.10 level (sig. = 0.053). Between the two groups induced with regulatory misfit, their recommendations were also marginally different ($p < 0.10$). Confidence in judgment was found to be different amongst all treatment groups and between participants induced with regulatory fit (M = 62.7%) than others induced with regulatory misfit (M = 51.72%, $p < 0.10$). Participants' confidence ratings were also found associated with their regulatory foci ($F = 5.218$, $p < 0.05$). Promotion focused participants were more confident in their final recommendations (M = 63.33%) than prevention focused participants (M = 48.7%). Hence, H11b(ii) was accepted.

8.7 Validity check and Robustness

Correlations between the measures taken in each experiment were checked to confirm that the experiment is logically constructed. The statistics were presented in Table 8.12 below.

Table 8.12 Correlation between measures in Experiment 2 (Spearman's rho)

Experiment 2a	Upper bound	Lower bound	Likelihood
Lower bound	**0.923*** **	-	
Likelihood	**0.332*** **	**0.309*** **	-
Confidence	0.044	0.042	0.108
Experiment 2b	Donation	Likelihood (curve)	Likelihood %
Likelihood (curve)	**0.218***		
Likelihood %	**0.521*** **	-0.017	
Confidence	-0.059	0.041	0.177
Experiment 2c	Upper bound 2a	Lower bound 2a	Donation 2b
Recommendation	0.044	0.015	0.187

*** significant at 0.01 level *significant at 0.10 level

Using Spearman's rho, it was confirmed that all measures (apart from confidence about the judgment) in Experiment 2a were correlated. This was as expected because if a participant believed in a higher probability of getting more from subscriptions, his estimation on the amount of the total revenue from subscriptions would also be higher - as indicated by the range. The measures taken in Experiment 2b were also correlated: The higher the estimated amount of donations, the higher the likelihood of getting £3,000 from donations. No correlation was however found between the recommendation in Experiment 2c and estimation judgments made earlier in Experiment 2a and 2b.

Table 8.13 Non-parametric (Experiment 2)

Dependent Measures	Promotion vs. prevention focus Sig.	Fit vs. misfit Sig.	Promotion misfit vs. prevention misfit Sig.
1. Upper bound	**0.004*** **	0.254	0.803
2. Lower bound	**0.010*** **	0.288	0.969
3. Donations	**0.007*** **	**0.011** **	**0.037** **

*** significant at 0.01 level **significant at 0.05 level

Robust checks had been conducted using non-parametric test. Statistics (shown in Table 8.13 above) from Mann-Whitney's U test suggested significant relationships between differences in regulatory foci primed and variations in judgments. The non-parametric

statistics suggested that in Experiment 2a (the estimation judgment on the amount of subscription collected), participants with different regulatory foci responded differently. This result supports H1a(v), which is in agreement with results of parametric tests reported earlier in this chapter (Section 8.4 and 8.5). In Experiment 2b, the estimation of amount of donations was also found significantly different between individuals primed with different regulatory foci, confirming the acceptance of H1a(vii) in this task. The U-test result also suggests that individuals from the two misfit groups made different judgment, which supports results reported earlier in Section 8.5.1.1 and confirms that H12b(iii) shall be rejected.

In Experiment 2b, variations in estimations of amount of donations were significantly associated with regulatory fit versus misfit induced ($p < 0.05$). Estimations by the two groups induced with regulatory fit were very close to the amount (£3,000) included as the midpoint in the table used in the task; whereas the two misfit groups gave estimates significantly deviated from this amount. As discussed in 8.5.2, it can be inferred from this result that judgment may be unduly affected by irrelevant information processed in the manner sustaining people's regulator focus orientations.

Non-parametric statistics were utilized to test the distributions of the responses from each treatment group. Using Kruskal-Wallis test, it was evidenced that the distributions of the responses were the different across all treatment groups in Experiment 2 (see Table 8.14).

Table 8.14 Kruskal-Wallis test of whether the distribution is the same across all 4 groups

Dependent measures	Sig.
1. Upper bound in Experiment 2a	**0.015****
2. Lower bound in Experiment 2a	**0.005*****
3. Donations in Experiment 2b	**0.001*****

*** significant at 0.01 level **significant at 0.05 level

As discussed in Section 8.4.2 and Section 8.5.2, it is suspected that results might be affected by information given in the manipulations. The above results from the non-parametric tests indicate that individuals in different treatment groups responded differently in Experiment 2b. Hence, it can be inferred that results support the existence of a persuasion fit effect that influences individuals' perceived persuasiveness of both case information and additional information given in the manipulations.

8.8 Summary and conclusions

Experiment 2 adopted the method to induce regulatory fit / misfit by integrating judgment uses sustaining / disrupting strategic means of regulatory focus in the tasks. Participants started each section of this experiment with a required judgment for manipulation setting, which was designed as an integral part of the task. Two variations of the same judgment were produced with one representing eager strategic means (e.g., to pick out suspicious ones among a list of items) and the other triggering vigilant strategic means (to mark for each listed item whether it required explanation).

Check had been carried out on the first manipulation (in Experiment 2a). As indicated by number of items identified in the manipulation task, the effectiveness of manipulation was confirmed (see Section 8.3.1), e.g., promotion focused individuals, as expected, identified less items when applying eager strategy.

A summary of results of hypotheses testing is presented in Table 8.15 (on next page). Variations in judgments in both Experiment 2a (subscription section) and Experiment 2b (donations section) were found significant among treatment groups ($p < 0.10$), indicating influence of individuals' regulatory foci and the induced experience of regulatory fit versus misfit on their judgments. This was also confirmed by non-parametric tests reported earlier in Section 8.7.

In the subscriptions section (Experiment 2a), participants with different regulator foci made different judgments under the effect of persuasion fit in estimation task (Experiment 2a-1). Promotion focused participants, as more concerned with information pertaining collectability, indicated higher likelihood when induced with regulatory fit. Prevention focused participants were expected to indicate lower likelihood when induced with regulatory fit as they should be more concerned with information pertaining uncollectability. However, their responses were found to be the opposite. In the likelihood assessment task (Experiment 2a-2) participants in different treatment groups made significantly different judgments. A significant persuasion fit effect was found on responses from prevention focus participants; whereas no effect was found on responses from promotion focus participants. Participants' rating of confidence in their likelihood assessment judgments, in Experiment 2a-3, was not associated with differences in regulatory fit versus misfit induced in the experiment. Moreover, the two groups induced with regulatory misfit made significantly different judgment.

Table 8.15 Summary of results of hypotheses testing in Experiment 2

H1: Promotion focused people are more sensitive to and tend to be primarily concerned with 'positive' accounting information; whereas, prevention focused people are more sensitive to and tend to be primarily concerned with 'negative' accounting information.			
H1a: Therefore, individuals with different regulatory foci will make different judgments as a result of differences in their sensitivities to 'positive' versus 'negative' accounting information processed.	Exp 2a-1 Exp 2a-2 Exp 2b-1 Exp 2b-2	H1a(v) H1a(vi) H1a(vii) H1a(viii)	**Accepted** Rejected **Accepted** Rejected
H5: (Integral) Regulatory fit improves the persuasiveness of positive accounting information among promotion focused individuals.			
H5a: in likelihood assessments; and,	Exp 2a-2 Exp2b-2	H5a(i) H5a(ii)	**Accepted** Rejected
H5b: in estimations.	Exp 2a-1 Exp 2b-1	H5b(i) H5b(ii)	**Accepted** **Accepted**
H6: (Integral) Regulatory fit improves the persuasiveness of negative accounting information among prevention focused individuals.			
H6a: in likelihood assessments; and,	Exp 2a-2 Exp 2b-2	H6a(i) H6a(ii)	Rejected **Accepted**
H6b: in estimations.	Exp 2a-1 Exp 2b-1	H6b(i) H6b(ii)	Rejected **Accepted**
H7: The effect of persuasion fit induced integrally affects the persuasiveness of accounting information processed and leads to variations in judgments among people.			
H7a: in likelihood assessments; and,	Exp 2a-2 Exp 2b-2	H7a(i) H7a(ii)	**Accepted** **Accepted**
H7b: in estimations.	Exp 2a-1 Exp 2b-1	H7b(i) H7b(ii)	**Accepted** Rejected
H11: Individuals are more confident about their judgment when induced with regulatory fit.			
H11a: in likelihood assessment; and,	Exp 2a-3 Exp 2b-3	H11a(iii) H11a(iv)	Rejected Rejected
H11b: in final recommendation.	Exp 2c	H11b(ii)	**Accepted**
H12: Individuals are likely to take more careful thinking in processing the messages when induced with regulatory misfit, and therefore, there will be no difference between judgments by individuals with different regulatory foci.			
H12a: in likelihood assessments; and,	Exp 2a-2 Exp 2b-2	H12a(ii) H12a(iii)	Rejected Rejected
H12b: in estimations.	Exp 2a-1 Exp 2b-1	H12b(ii) H12b(iii)	Rejected Rejected

Results from Experiment 2a were found to be significantly affected by additional information given in manipulation – committee's prediction of subscriptions to be collected. The two fit groups made judgments that were congruent with the given prediction; whereas judgments by the two misfit groups were less affected. Prevention

misfit group made significantly lower estimation compared with the other groups. A reasonable explanation for these results is participants' unduly reliance on information given in manipulation. Due to the feeling of 'rightness' created from regulatory fit induced, individuals feel 'right' about information processed in the manner that sustains their regulator focus and therefore, feel 'right' to use this information in judgment. On the other hand, individuals feel 'wrong' about information processed in disrupting manner with their regulatory focus orientation, and therefore, feel 'wrong' to use it in making judgment.

In the donations section (Experiment 2b), differences in regulatory foci were found to have significant impact on responses in the estimation task (Experiment 2b-1) but not in the likelihood assessment task (Experiment 2b-2). Variations in responses in both tasks were significant amongst all treatment groups. In the estimation task (Experiment 2b-1), both promotion focused and prevention focused participants gave higher estimates in the estimation task when induced with regulatory fit. The hypothesized effect of persuasion fit was supported by responses from promotion focused participants; whereas the responses from prevention focused participants contradicted with the prediction. In the likelihood assessment task (Experiment 2b-2), the persuasion fit effect was found to affect responses from prevention focused participants but this effect was insignificant on responses from promotion focused participants. Moreover, the two groups induced with regulatory misfit made different judgments in both tasks.

It is noticed that the promotion focused and prevention focused participants who were induced with regulatory fit made similar judgments in the first task in this section (Experiment 2b-1). Both groups gave estimates that were close to the amount presented in the table used in the manipulation task 2 as the 'midpoint'. As shown in Figure 8.4 in Section 8.3.2, it was presented in a conversion table between monthly average and annual total amounts that amounts included were not supposed to be informative. Thus, results in the donations section (Experiment 2b) also suggest possible bias in judgment associated with regulatory fit. Individuals were found to place unduly reliance on information from unreliable sources and irrelevant information.

The experience of regulatory fit induced in this experiment was not found to increase participants' confidence in their judgments in likelihood assessment (Experiment 2a-3 and 2b-3). Whereas, in rating their confidence in the final recommendation, participants induced with regulatory fit (M = 62.7%) indicated greater confidence, compared with others induced with regulatory misfit (M = 51.72%), which difference was marginally

significant ($p < 0.10$).

In conclusion, this experiment employs the method of regulatory fit that creates experience of regulatory fit within each section of the experiment – integral fit. The manipulations were to instruct individuals to adopt either eager or vigilant strategy that sustained or disrupted their regulatory foci. Although the effectiveness of this integral fit induction was confirmed by measures taken in the first manipulation task, additional information given in the materials for manipulation settings were found to unduly affect participants' responses in the experiment. Therefore, the supporting results obtained in this experiment for the effect of persuasion fit on judgments may be subject to the unanticipated influence by the manipulation settings that individuals place unduly reliance on irrelevant information in making judgments in this experiment. Moreover, results of non-parametric tests suggest individuals' perceived persuasiveness of both the case information and additional information given in the manipulation settings are influenced by the effect of persuasion fit.

Chapter 9: Experiment 3 – Regulatory focus/ regulatory fit and persuasiveness of accounting information: Incidental fit

9.1 Introduction

Three methods of regulatory fit induction have been introduced in Chapter One (Section 1.4.3):

- Message matching – by matching the message framings applied with individuals' regulatory focus orientation;
- Integral fit – by creating an integral experience of fit by applying appropriate strategic means that sustains one's regulatory focus orientation within the task;
- Incidental fit – by creating an incidental sustaining experience of fit by using appropriate strategic means applied in a prior activity independent of the task.

Experiment 1 and Experiment 2 have tested the effect of persuasion fit induced using the method of message matching and integral fit. This experiment (Experiment 3) applies the last of the three methods of regulatory fit induction introduced in this thesis to examine the effect of regulatory fit on the perceived persuasiveness of accounting information. Regulatory fit was induced by asking participants to perform a separate task, before commencing the main experiment. The preliminary / manipulation task triggered the use of strategic means, either eagerness or vigilance, to sustain promotion focus or prevention focus.

Promotion focused individuals attend especially to 'positive' accounting information, i.e., information concerning attained and collectable amounts; whereas prevention focused individuals attend especially to 'negative' accounting information, i.e., information concerning uncollected and uncollectable amounts (H1). The differences in regulatory foci may lead to different judgments among individuals (H1a). Regulatory fit / misfit affects the individuals' perceived persuasiveness of messages / information received. Hence, individuals with different regulatory foci will make different judgments when induced with regulatory fit from incidental sources (H10), as promotion focused individuals will be more persuaded by 'positive' accounting information (H8); whereas, prevention focused individuals will be more persuaded by 'negative' accounting information (H9). Individuals' experience of regulatory misfit from adopting disrupting strategic means in prior task performance will lead to more careful consideration of information received, which can be

expected to lessen the effect of differences in regulatory foci in judgments among people (H12). The experience of fit induced incidentally from prior task performance would also make participants more confident about their judgment (H11).

The above hypotheses are tested in this experiment (Experiment 3) that employs a 2 (regulatory foci) x 2 (eager versus vigilant means) design by administrating a questionnaire. A total of 145 Accounting and Finance students from University of Glasgow and University of Strathclyde were recruited after lectures and tutorials and invited to participate in the experiment. As previously illustrated in Chapter Six, the case material was constructed as an analogy to an audit task in which an audit opinion is formed based on judgments made from performing audit procedures. Each participant was required to assume the role as an independent person who was invited to advice the committee of a student drama club on planning activities of the year after reviewing accounting information about the revenue generation of the club.

Four (2 x 2) sets of research instruments were produced and randomly distributed among participants in this experiment. Each participant was primed with either a promotion focus or a prevention focus at the start of this experiment. They then performed in a short reconciliation task, which was designed to create incidental sources of regulatory fit / misfit in this experiment. The design of the incidental task was adapted from the speed vs. accuracy experiment by Forster, Higgins and Bianco (2003) (details of this manipulation tasks will be clarified later in this chapter). Participants were to apply either eager or vigilant strategy that sustained or disrupted their regulatory foci. Crossing this manipulation with primed regulatory foci, two fit conditions (promotion focus with eager means, prevention focus with vigilant means) and two misfit conditions (promotion focus with vigilant means, prevention focus with eager means) were produced.

This chapter is structured as follow: Section 9.2 lays out the priming method applied in this experiment and Section 9.3 illustrates the induction tasks of regulatory fit. Results of dependent measures in each of the three related sections are reported in the following sections: Experiment 3a – members' subscriptions (Section 9.4); Experiment 3b – donations (Section 9.54); and Experiment 3c – recommendation (Section 9.6). After discussing the validity and robustness of results in Section 9.7, Section 9.8 summarizes findings of this experiment and concludes this chapter.

9.2 Priming of regulatory focus

Participants in this experiment were primed with a promotion focus or a prevention focus when they read the general instruction at the beginning of the experiment. The priming was accomplished by introducing a reward scheme in either a gain vs. non-gain frame to activate a promotion focus, or a loss vs. non-loss framing to activate a prevention focus.

A small treat (a chocolate bar) was offered to each participant as an indication of gratitude for participation. It was explained to participants that the size of the prize (treat) each would get depended on the quality of the performance in the manipulation task. As shown in Figure 9.1 below, for the priming of promotion focus, participants were informed that good performance in the task will be rewarded, which was described as an opportunity to upgrade the size of the reward; whereas the priming of prevention focus was described as a threat of reward being downgraded that poor performance will be penalized.

Figure 9.1 Instruction for priming of regulatory focus

- Promotion focus priming:

  Everyone who participates in this study will be given a chocolate bar at the end of the experiment.

  If your performance in Task 1, the checking of advance bookings**,** is good, instead of the small chocolate bar, normally given to participants, you will get a bigger "standard" sized bar.

- Prevention focus priming:

  Everyone who participates in this study will be given a chocolate bar at the end of the experiment.

  If your performance in Task 1, the checking of advance bookings, is poor, instead of the standard sized chocolate bar normally given to participants, you will just get a "small" bar.

The purpose of introducing this reward scheme was to trigger a promotion or a prevention focus on individual participant. All participants received the identical reward (of the same size) at the end of the experiment and their actual performance in the manipulation task was not assessed.

9.3 Manipulations – the incidental fit task

After reading the general instruction to the experiment, participants were to perform in a reconciliation task designed for regulatory fit / misfit induction. Each participant was required to check a list of 15 bookings received for performances against the cashbook recording actual payment for the listed bookings received.

Shown in Figure 9.2 below is the illustrative example given in the task and the first three items. Each participant was to mark for each of the listed bookings, by circling the letter "M" for item with matched payment found in cashbook and circling the letter "U" for unpaid item.

Figure 9.2 Manipulation task of Experiment 3 – the answer panel

Bookings - September						
Circle ("M"/"U")	**Date**	**Reference**	**Show Time**	**No. of tickets**	**Price £ (Seat Area A- F)**	**Total £**
(M) / U	01-Sep	1205683	Oct 10th 19:30	2	F - 15.00	30
M / U	01-Sep	1208927	Oct 10th 19:30	3	B - 30.00	90
M / U	05-Sep	Union staff	Oct 12th 19:30	14	D - 20.00	280
M / U	05-Sep	1202817	Oct 10th 19:30	3	B - 30.00	90

This task was employed solely for the purpose of inducing regulatory fit; it was not related to any of the required tasks in the experiment. Information provided for reconciliation was not relevant to the performance of the succeeding, and main, experimental task. Therefore, the information in itself was not expected to affect individuals' judgments in the main part of the experiments.

Study by Forster, Higgins and Bianco (2003) reported evidence that individual's regulatory focus orientation is associated with emphasis on speed of accomplishment or accuracy of efforts. Promotion focused individuals are preferred to apply eager means to emphasize on speed as it allows them to generate more responses to maximize the chances of making 'hits'. Whereas prevention focused individuals prefer vigilant means to emphasize on accuracy, as it minimize the occasions for making errors.

Two variations of instructions to manipulation task were produced as guided by Forster et al. (2003). As shown in Figure 9.3, participants were required to apply either eager strategic means – to finish as much as they can, or to apply vigilant strategic means – to

avoid the necessity of corrections. Participants were randomly assigned to / distributed with either version of the two instructions.

Figure 9.3 Manipulation task of Experiment 3 – Instructions

- Instruction to trigger eager means

  You will not necessarily be allowed sufficient time to complete this task. It is important that you get as much of it done as you reasonably can.

- Instruction to trigger vigilant means

  It is important that it be done carefully and clearly (try to get things right first time – without need of "corrections").

9.4 Experiment 3a – subscriptions

After reading the priming material in the general instruction of the experience and completing this manipulation task, four treatment groups were formed: two groups induced with regulatory fit (a group of promotion focused participants who were instructed to apply eager means, a group of prevention focused who were instructed to apply vigilant means); and two groups induced with regulatory misfit (a group of promotion focused group applying vigilant means, a group of prevention focused participants applying eager means).

Since promotion focused and prevention focused people pay selective attention to 'positive' and 'negative' information, the differences in their sensitivities to different information processed is likely to lead to differences in their judgments made (H1a). It is hypothesized that the incidental experience of regulatory fit versus misfit created in the manipulation task will impact on the persuasiveness on accounting information so that participants with different regulatory foci will reach at different judgments (H10). Participants who were primed with a promotion focus shall find 'positive' accounting information pertaining amounts attained and collectability more persuasive (H8); whereas those participants primed with a prevention focus shall find 'negative' accounting information pertaining amount unattained and uncollectability more persuasive (H9). Individuals induced with regulatory fit in the prior task shall also feel 'right' about their judgments in the task immediate after, and hence be more confident about their judgments (H11). For those who were induced with regulatory misfit in the prior task, their disrupted regulatory focus orientations will make them to think more carefully about information / messages received and thus lessens the effect of differences in regulatory foci on judgments. Thus, there shall make no difference in judgments among individuals who were induced with regulatory misfit (H12).

9.4.1 Dependent measures and hypotheses testing

9.4.1.1 Experiment 3a-1: Range of possible amounts

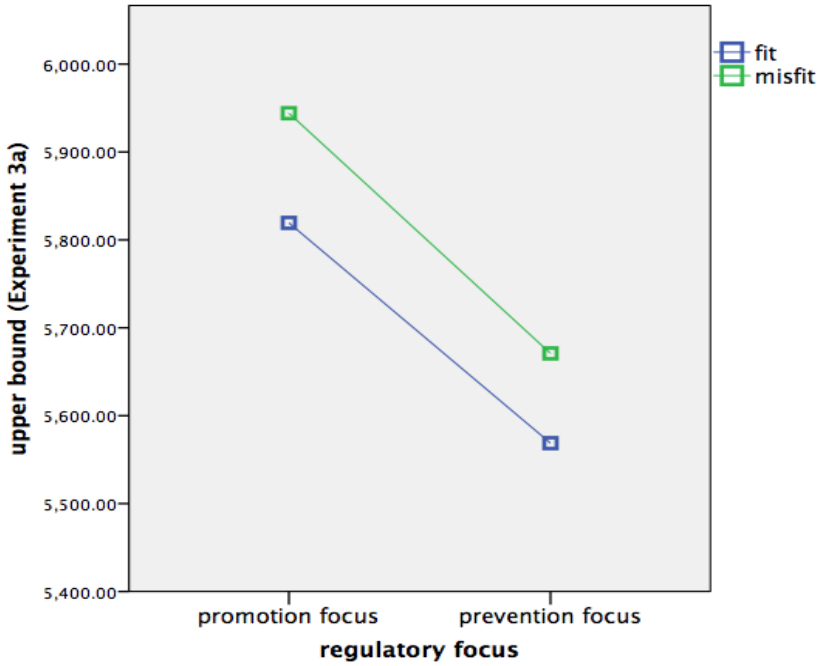
The first required judgment was to estimate the total amount of revenue to be generated from members' subscriptions by indicating a range of expected amounts. The descriptive results of responses in this task from each treatment groups are summarized in Table 9.1 and the means of responses in indicating the upper bound and lower bound of the range are plotted separately in Figure 9.4 and Figure 9.5.

Table 9.1 Experiment 3a-1 – Range of amounts generated from subscriptions (£)

Estimation of the range of amount to be collected (£)		N	Upper bound		Lower bound	
			Mean	Std. Deviation	Mean	Std. Deviation
Group 1	**Promotion fit**	31	5819	638.968	4774	968.493
Group 2	**Prevention fit**	32	5569	859.646	4494	940.809
Group 3	**Promotion misfit**	34	5944	639.693	4594	917.817
Group 4	**Prevention misfit**	35	5671	655.714	4691	1001.579
	Total	132	5751	709.694	4638	952.660

In indicating the upper bound of the range of expected amounts to be collected, responses were significantly different between individuals primed with promotion focus and those primed with prevention focus ($F = 4.640$, $p < 0.05$); whereas in indicating the lower bound, participants with different regulatory foci gave similar estimates. Hence, it can be inferred that individuals with different regulatory foci made different judgments in this task as the upper bound of the range were significantly different. This findings supports H1a(ix).

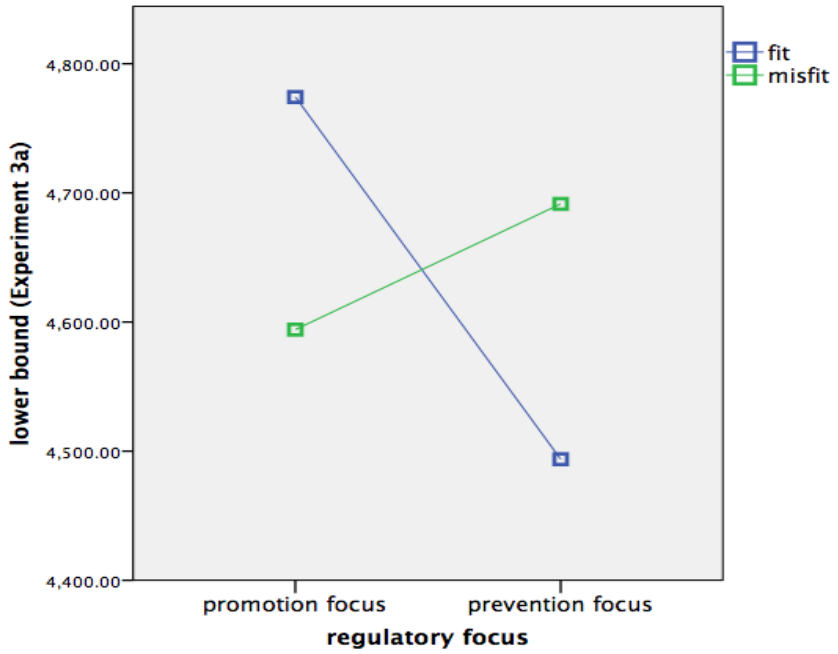
Figure 9.4 Experiment 3a-1 – Estimation on range of amounts to be collected (£) – upper bound



Note:

1. Promotion focus fit group and prevention focus misfit group: instructed to apply eager strategy in the manipulation task – finish as much as possible in given time
2. Prevention focus fit group and promotion focus misfit group: instructed to apply vigilant strategy in the manipulation task – avoid making mistakes / without need of corrections

Figure 9.5 Experiment 3a-1 – Estimation on range of amounts to be collected (£) – lower bound



Note:

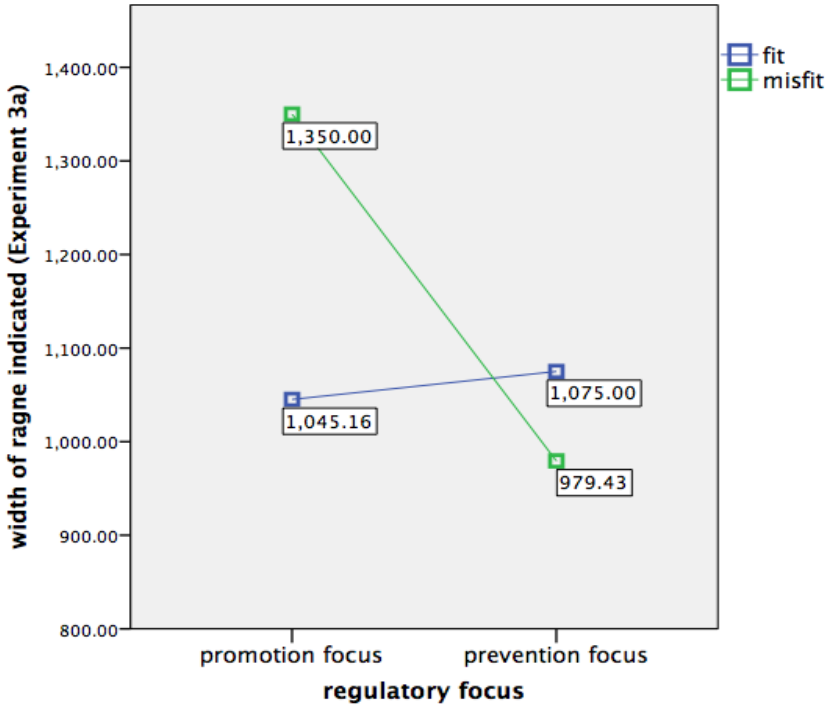
1. Promotion focus fit group and prevention focus misfit group: instructed to apply eager strategy in the manipulation task – finish as much as possible in given time
2. Prevention focus fit group and promotion focus misfit group: instructed to apply vigilant strategy in the manipulation task – avoid making mistakes / without need of corrections

Promotion focused participants in the (regulatory) fit condition made higher estimates of both the upper bound (M = £5,819) and the lower bound (M = £4,774) than prevention focused participants (M = £5,569 and £4,494). However, for both measures, variations in responses among treatment groups were insignificant. The differences between the two promotion focused groups and differences between the two prevention focused groups were too small to establish their significance. Hence, H8b and H9b were rejected.

Since there were no significant differences between the two groups induced with regulatory fit in their responses to both measures, $p > 0.10$, H10b was also rejected.

As an alternative attempt to capture the variations in judgment, the width of the range was computed for each response in this task (as shown in Figure 9.6 on next page). The width was measured to be greatest on responses from promotion focused participants induced with regulatory misfit; and smallest from prevention focused participants induced with regulatory misfit. The differences in judgments, as measured by the width of range, was significant between the two groups induced with regulatory misfit, ($t(61) = 1.818$, one-tail sig. = 0.037, $p < 0.05$). Based on this result, H12b(iv) was rejected.

Figure 9.6 Experiment 3a-1 – Estimation on range of amounts to be collected (£) – width of range



Note:

1. Promotion focus fit group and prevention focus misfit group: instructed to apply eager strategy in the manipulation task – finish as much as possible in given time
2. Prevention focus fit group and promotion focus misfit group: instructed to apply vigilant strategy in the manipulation task – avoid making mistakes / without need of corrections
3. Width of range = upper bound – lower bound

9.4.1.2 Experiment 3a-2: Likelihood assessment

The second task in this section of the experiment required participants to assess the likelihood of generating the target amount (£6,000) from subscriptions, as well as the likelihood of generating the rest of amounts between £4,000 and £8,000 (with an interval of £250). (The answer panel and instruction given are exhibited in Figure 6.6 in Section 6.2.1.2).

The likelihood indicated by participants shall decrease as the assessed amount increases. The path of the likelihood indicated for the assessed amount from low to high shall be a curve dropping from '100% certain' to '0% certainly not'. It is predicted (H5c) that, induced with regulatory fit, promotion focused individuals would believe in a higher collectability of the target amount, as 'positive' information about amounts attained became more persuasive; whereas prevention focused individuals would believe in a lower collectability, as 'negative' information about unattained amounts became more persuasive. Hence, it can be expected that the path of assessments on the collectability of listed

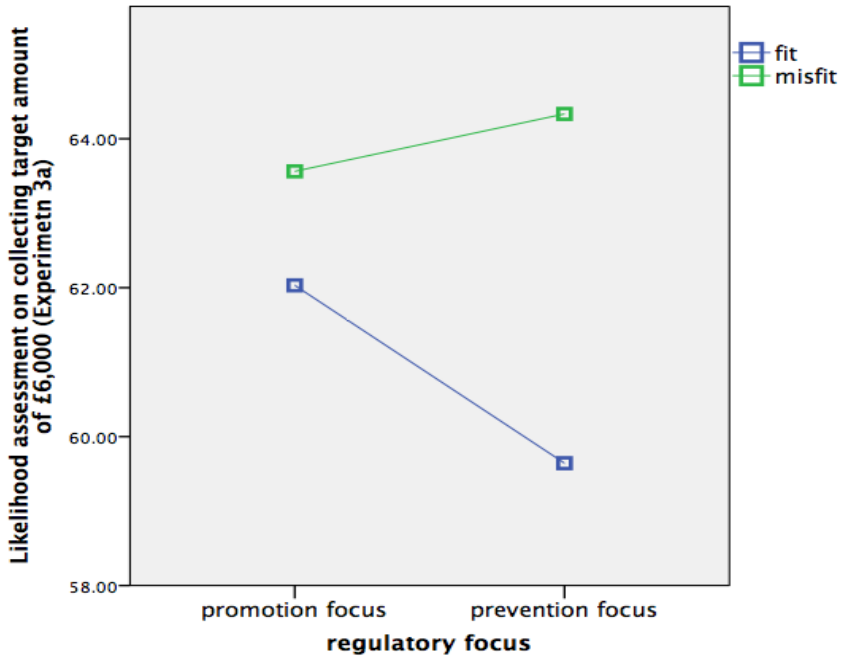
amounts by prevention focused participants would drop quicker than the path / curve of assessments by promotion focused participants.

Measured at the midpoint of the range of amounts listed – £6,000, as an indicator of the pattern of participants' responses, the descriptive results on the indicated likelihood of collecting £6,000 were exhibited in Table 9.2 below and means of responses of each treatment groups are plotted in Figure 9.7 (on next page)[26].

Table 9.2 Experiment 3a-2 – Assessment of the likelihood of receiving £6,000 (%)

Likelihood assessment		N	Mean	Std. Deviation
Group 1	Promotion fit	32	62.03	22.996
Group 2	Prevention fit	28	59.64	25.889
Group 3	Promotion misfit	32	63.56	25.741
Group 4	Prevention misfit	30	64.33	23.916
	Total	122	62.45	24.391

Figure 9.7 Experiment 3a-2 – Assessment of likelihood of receiving £6,000 or more (%)



Note:

1. Promotion focus fit group and prevention focus misfit group: instructed to apply eager strategy in the manipulation task – finish as much as possible in given time
2. Prevention focus fit group and promotion focus misfit group: instructed to apply vigilant strategy in the manipulation task – avoid making mistakes / without need of corrections

[26] Responses from all participants and each of the treatment groups were also plotted using medians for likelihood indicated for each of the listed amounts, which were presented in figures in Appendix 3.

No difference was found in responses between promotion focused and prevention focused participants. Thus, H1a(vi) was rejected.

As shown in Figure 9.7, all four treatment groups indicated likelihood within a small range around 60%. Participants made similar judgments in this task, rejecting H10a. In addition, there was no significant difference in responses from individuals induced with regulatory fit versus misfit among promotion focused participants or prevention focused participants. Hence, the results did not support H8a and H9a.

Responses from the two groups induced with regulatory misfit were statistically the same. Hence, H12a(iv) was accepted.

9.4.1.3 Experiment 3a-3: Confidence rating

Participants across four treatment groups indicated their confidence in judgment made in the likelihood assessment task. It is hypothesized that fit induced would lead to feeling of rightness and therefore increase individuals' confidence in judgments made (H11).

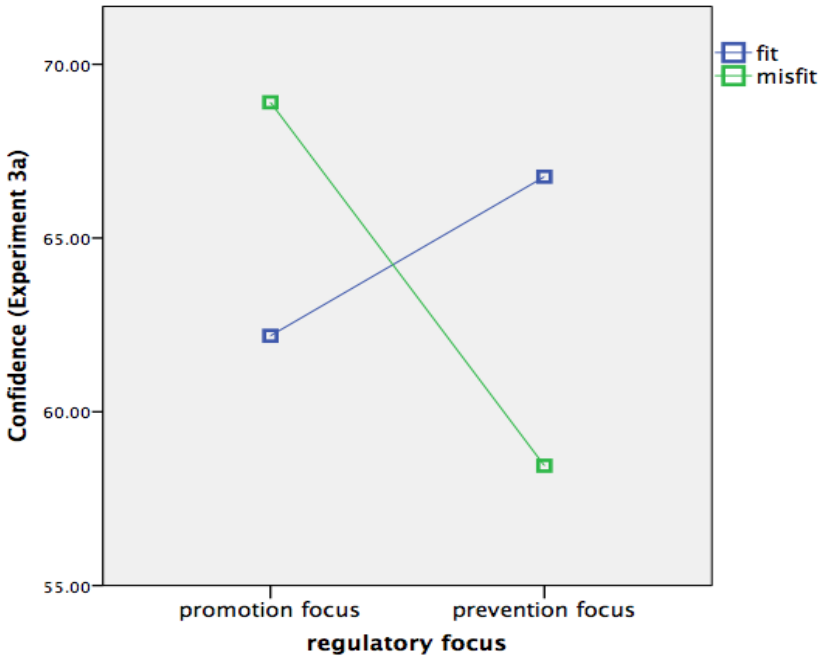
The descriptive results are summarized in Table 9.3 below and means of responses from each treatment groups are plotted in Figure 9.8 on next page.

No significant association was found between participants' confidences in their judgment in the likelihood assessment task (Experiment 3a-2) and their incidental experience of regulatory fit versus misfit. Hence, H11a(v) was rejected.

Table 9.3 Experiment 3a-3 – Confidence rating (%)

Confidence		N	Mean	Std. Deviation
Group 1	Promotion fit	32	62.19	18.834
Group 2	Prevention fit	34	66.76	23.383
Group 3	Promotion misfit	32	68.91	24.552
Group 4	Prevention misfit	29	58.45	24.426
	Total	127	64.25	22.965

Figure 9.8 Experiment 3a-3 – Confidence in judgment (%)



Note:

1. Promotion focus fit group and prevention focus misfit group: instructed to apply eager strategy in the manipulation task – finish as much as possible in given time
2. Prevention focus fit group and promotion focus misfit group: instructed to apply vigilant strategy in the manipulation task – avoid making mistakes / without need of corrections

9.4.2 Summary of results of Experiment 3a

This section of the experiment tested the following hypotheses. (The results of hypotheses testing using ANOVA analysis are summarized in Table 9.4 below.)

Table 9.4 Experiment 3a – ANOVA analyses

Experiment 3a	Estimation			Likelihood assessment	Confidence (H11)
	Upper bound	**Lower bound**	**Width of range**		
Hypotheses testing (Existence of differences)					
Regulatory foci (H1a)	**4.640****	0.249	1.436	0.027	0.408
Fit vs. misfit	0.804	0.005	0.457	0.465	0.022
Promotion focused (fit vs. misfit) (H8)	0.617	0.592	1.746	0.063	1.509
Prevention focused (fit vs. misfit) (H9)	0.302	0.690	0.247	0.514	1.900
All treatment groups (H10)	1.821	0.511	1.228	0.204	1.286
Between misfit groups (H12)	**3.068***	0.177	**3.334***	0.015	2.774
Manipulation check (Existence of differences in groups)					
Strategic means (eager vs. vigilant)	0.030	1.245	1.905	0.101	**3.347***

**significant at 0.05 level *significant at 0.10 level

First, since promotion focused people are more sensitive to and concerned with 'positive' information; whereas prevention focused people are more sensitive to and concerned with 'negative' information, it is therefore likely that this effect of regulatory focus on information processing will lead to differences in judgments among individuals with different regulatory foci (H1a). The result of testing on responses in the estimation task (Experiment 3a-1) supports this hypothesis (H1a(ix)). In indicating the upper bound of the range of expected amounts to be collected, responses were significantly different between individuals primed with promotion focus and those primed with prevention focus ($F = 4.640$, $p < 0.05$). This difference was also supported by non-parametric tests (Mann-Whitney U test sig. = 0.027). Whereas for the likelihood assessment task (Experiment 3a-2), results do not support H1a(x).

Second, it is hypothesized that regulatory fit induced using the method of incidental fit will influence individuals' judgments in this section. The persuasion fit effect of (incidental) regulatory fit improves the persuasiveness of 'positive' accounting information among promotion focused individuals (H8); and it improves the persuasiveness of 'negative' accounting information among prevention focused individuals (H9). Hence, influenced by the persuasion fit effect of (incidental) regulatory fit, individuals with different regulatory foci can be expected to make different judgments (H10). These hypotheses concerning the persuasion fit effect have all been rejected by the results from the estimation task in Experiment 3a-1 (hypotheses H8b, H9b and H10b) and the likelihood assessment task in Experiment 3a-2 (hypotheses H8a, H9a and H10a).

Additional non-parametric tests were conducted to explore the data. Results from Kolmogorov-Smirnov test[27] signalled significant difference in responses between the two promotion focused groups (sig. = 0.025) in the estimation task (Experiment 3a-1), suggesting the existence of persuasion fit effect that was associated with variations in ranges indicated in this task. Results of the Moses Test of Extreme Reaction[28] suggest a significant difference in range of width between the two promotion focused group (induced with regulatory fit versus misfit) (sig. = 0.001) and the two prevention focused groups (sig. = 0.001). Therefore, it can be concluded from non-parametric statistics that, as indicated by the width of the range, the difference between regulatory fit and misfit induced was related

[27] This test analyses difference between treatment groups by analysing distance between the cumulative distribution function and the function of the sample.

[28] Moses Test of Extreme Reaction tests for differences of distributions between paired treatment groups. By ranking the responses of the two groups together, the test analyses the distributions of their rankings.

to variations in responses among promotion focused and prevention focused participants. The width of the range was expanded by the effect of misfit with promotion focus and condensed by misfit with prevention focus.

Result of Kruskal-Wallis test (non-parametric) rejected the existence of variations in responses in the likelihood assessment task (Experiment 3a-2) associated with regulatory fit versus misfit induced. Responses from all treatment groups were statistically the same. A plausible explanation of similar judgments among different treatment groups in this task might be that the answer panel (as shown in Figure 6.6 in Chapter Six) guided participants to assess the likelihood of listed amounts in a procedural manner that forced more attention paid in the judgment. The resulting high elaboration processing reduced the impact of the persuasion fit effect in this task[29].

Third, regulatory misfit makes individuals to take more careful and thorough consideration on information received, which is expected to lessen the difference in judgment between promotion focused and prevention focused individuals (H12). The two groups of participants experienced regulatory misfit in the manipulation task, were found to give significantly different estimates in the estimation task (Experiment 3a-1) (rejecting H12b(iv)); whereas in the likelihood assessment task (Experiment 3a-2), no significant difference in judgments were found (accepting H12a(iv)).

Forth, Experiment 3a-3 tested the hypothesized effect of the feeling of 'rightness' created from incidental experience of regulatory fit on individuals' confidence in their judgments (H11). Rejecting H11a(v), regulatory fit was not found to affect participants' confidence in their judgments in the likelihood assessment task. As shown in Table 9.4, result from ANOVA analysis revealed the existence of a relationship between variations in responses and difference in strategic means (eager or vigilant) applied in the manipulation task, $F = 3.347$, $p < 0.10$. Those who applied vigilant means in the manipulation task (the prevention focused group induced with regulatory fit and the promotion focused group induced with regulatory misfit) were more confident in their judgments in this section than others applied eager means (the promotion focused group induced with regulatory fit and the prevention focused group induced with regulatory misfit).

[29] The effect of procedural processing on audit judgment is investigated in Experiment 4 in this thesis, which will be reported in Chapter Ten.

9.5 Experiment 3b – Donations

In this section of the experiment, participants received a chart of past records of monthly donations received, exhibiting a skewed distribution with higher probability of received higher amounts received monthly. The high peak in the histogram chart signified the high frequency that the club received greater amount of donations in the past months, which may be considered as 'positive' information. The longer tail indicated more cumulative occurrences of receiving smaller amounts monthly in the past, which may be considered as 'negative' information. It is hypothesized in this study that individuals will pay selective attention to accounting information received as guided by their regulatory focus orientations (H1). This distinct effect of promotion focus versus prevention focus would potentially lead to different judgments among individuals (H1a).

Employing the method of message matching to induce regulatory fit / misfit in the first section (Experiment 1a), it was found that regulator fit / misfit continued to affect individuals' judgments in the second section of Experiment 1 (Experiment 1b). This section of the experiment (Experiment 3b) replicates the examination in Experiment 1b to investigate whether the incidental experience of regulatory fit may continue to influence judgments in this section. It is also hypothesized that prior experience of regulatory fit is associated with individuals' confidence in their judgments made (H11a(vi)).

9.5.1 Dependent measures and descriptive results

9.5.1.1 Experiment 3b-1: Estimation of total donations received

The first task in this section required participants to estimate the amount of donation that would be received in the year ahead. The descriptive results are summarized in Table 9.5 and means of responses are exhibited in Figure 9.9 on next page.

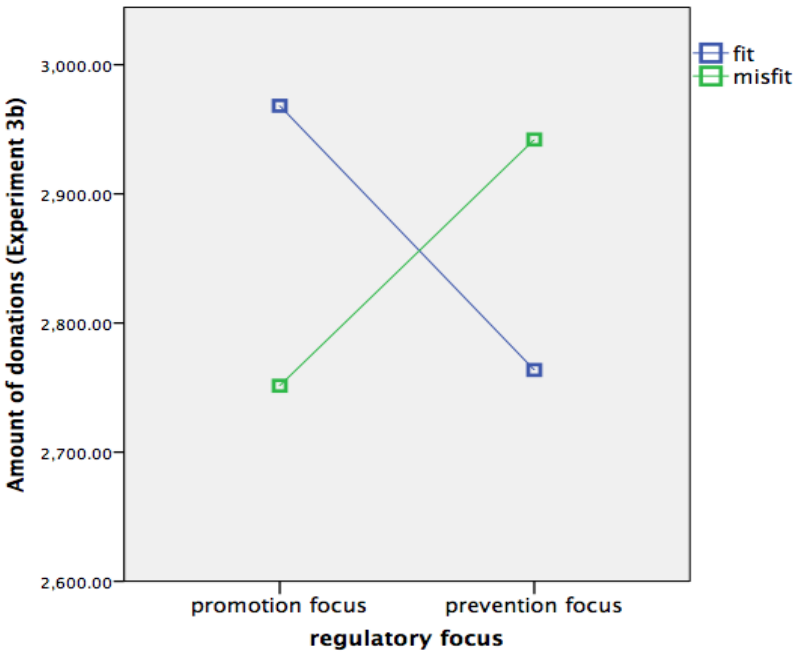
Table 9.5 Experiment 3b-1 – Estimation of amount of donations received (£)

Estimation of amount of donations received (£)		N	Mean	Std. Deviation
Group 1	**Promotion fit**	34	2968	723.813
Group 2	**Prevention fit**	33	2764	657.599
Group 3	**Promotion misfit**	28	2751	613.561
Group 4	**Prevention misfit**	29	2942	533.408
	Total	124	2859	640.679

The mean of responses from promotion focused participants (M = £2,870) and from prevention focused participants (M = £2,847) were statistically the same, $p > 0.10$. This result rejected H1a (xi).

The pattern of responses (as shown in Figure 9.9) seems to suggest possible association between participants' estimations and their experience of regulatory fit / misfit induced at early stage. As shown in Table 9.5, among promotion focused participants, the mean of responses from those in the (regulatory) fit condition (the promotion fit group) (M = £2,968), was higher than the mean of responses from others in the (regulatory) misfit condition (the promotion misfit group) (M = £2,751) (t (59.4) = 1.277, $p > 0.10$). Prevention focused participants in the (regulatory) fit condition (the prevention fit group) gave lower estimates (M = £2,764) than others in the (regulatory) misfit condition (prevention misfit group) (M = £2,942) (t (59.1) = 1.176, $p > 0.10$). Promotion fit group also gave higher estimates than prevention fit group on average (t (64.2) = 1.208, $p > 0.10$). However, none of these differences were significant. Results did not support the existence of significant association between participants' early experience of regulatory fit and their estimations.

Figure 9.9 Experiment 3b-1 – Estimation of amount to be received from donations (£)



Note:

1. Promotion focus fit group and prevention focus misfit group: instructed to apply eager strategy in the manipulation task – finish as much as possible in given time
2. Prevention focus fit group and promotion focus misfit group: instructed to apply vigilant strategy in the manipulation task – avoid making mistakes / without need of corrections

Participants induced with regulatory misfit made similar judgment in this task, t (52.9) = -1.252, p > 0.10, suggesting a possible carry-over effect of regulatory misfit.

9.5.1.2 Experiment 3b-2: Likelihood assessment

The next judgment was to assess the probability of the club to get £3,000 or more from donations received this year. It was expected that, as a result of persuasion fit induced incidentally, participants with a promotion focus, being more persuaded by the high peak in the chart, would believe in a higher collectability of target amount of donations; whereas those with a prevention focus, being more persuaded by the long tail in the chart, would believe in a lower collectability.

Descriptive results are summarized in Table 9.6 below and means of responses from all treatment groups are plotted in Figure 9.10 on next page.

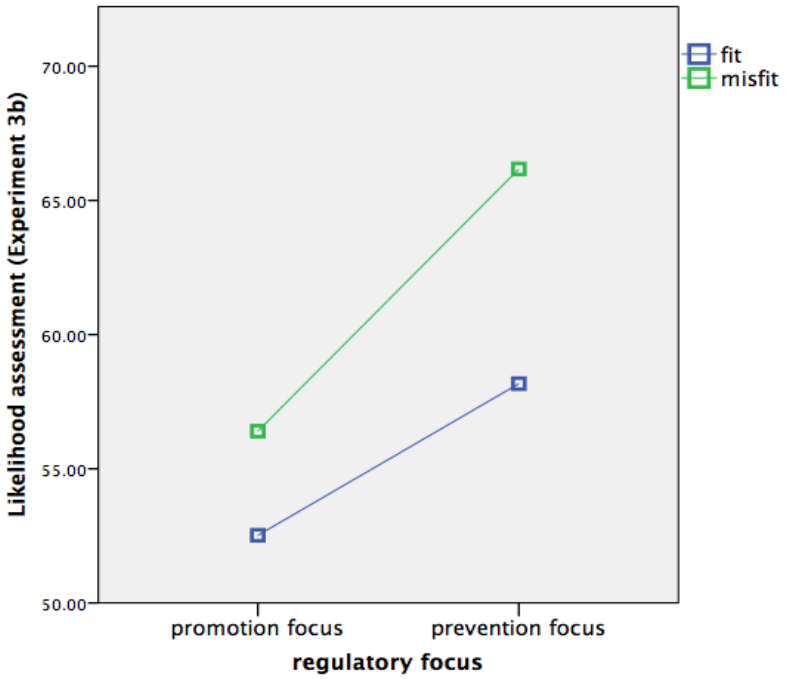
Table 9.6 Experiment 3b-2 – Likelihood assessment of receiving target amount of donations (%)

Likelihood of getting £3,000 (%)	N	Mean	Standard Dev.
Promotion Focus	**45**	**54.24**	**24.996**
fit	25	52.52	23.936
Misfit	20	56.40	26.727
Prevention Focus	**45**	**61.90**	**23.004**
fit	24	58.17	27.408
Misfit	21	66.17	16.262
Total	90	58.07	24.193

Prevention focused individuals indicated higher likelihood (M = 61.90%) than others with promotion focus (M = 54.24%) (t (86.9) = -1.513, p < 0.10). Although this difference in responses between participants with different regulatory foci was significant, it was however opposed to the prediction that promotion focused participants would attend more to the 'positive' information, the high peak, and therefore gave higher estimates in this task than prevention focused participants who would attend more to the 'negative' information, the long tail. Hence, H1a(xii) was rejected.

Variations in responses were not significant among all treatment groups. Participants induced with regulatory misfit earlier made significantly different judgments in this task (t (38.5) = -1.422, p < 0.10).

Figure 9.10 Experiment 3b-2 – Assessment of likelihood of receiving £3,000 or more (%)



Note:

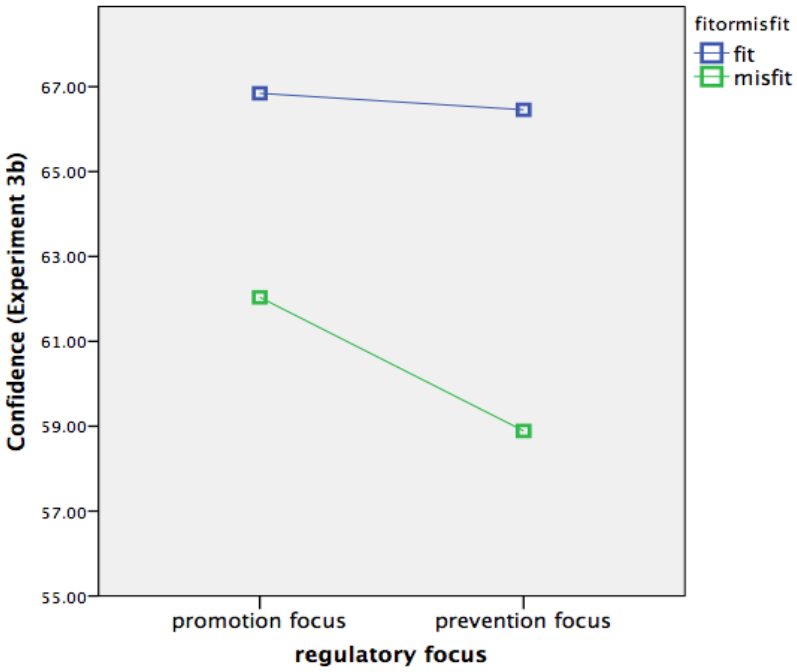
1. Promotion focus fit group and prevention focus misfit group: instructed to apply eager strategy in the manipulation task – finish as much as possible in given time
2. Prevention focus fit group and promotion focus misfit group: instructed to apply vigilant strategy in the manipulation task – avoid making mistakes / without need of corrections

Responses seemed to suggest possible rebound in judgment in this task. Promotion focused participants were expected to indicate higher likelihood than prevention focused participants. The result suggested the opposite. It was also expected that, among promotion focused participants, those in the (regulatory) fit condition would indicate higher likelihood than others in the (regulatory) misfit condition. Contradicting with this prediction, responses (M = 52.52%) from the promotion fit group were lower than responses from the promotion misfit group (M = 56.40%), on average. Among prevention focused participants, it was as predicted that those in the (regulatory) fit condition would make lower estimations (M = 58.17%) than those in the (regulatory) misfit condition. However, the prevention misfit group made the highest estimations (M = 66.17%) in this judgment amongst all groups ($t(53) = 2.242$, $p < 0.05$).

9.5.1.3 Experiment 3b-3: Confidence rating

Participants then rated their confidence in their earlier judgment on assessing the likelihood of receiving the target amount (£3,000) of donations (as shown in Figure 9.11).

Figure 9.11 Experiment 3b-3 – Confidence in judgment (%)



Note:

1. Promotion focus fit group and prevention focus misfit group: instructed to apply eager strategy in the manipulation task – finish as much as possible in given time
2. Prevention focus fit group and promotion focus misfit group: instructed to apply vigilant strategy in the manipulation task – avoid making mistakes / without need of corrections

The group of promotion focused participants induced with regulator fit, in the manipulation task, was found to be the most confident (M = 66.84%) and the group of prevention focused participants induced with regulatory misfit was the least confident (M = 58.89%). As shown in Figure 9.11, participants induced with regulatory fit were more confident in their judgments than others induced with regulatory misfit. Differences were however not insignificant ($t(117) = 1.45$, $p > 0.10$). Hence, H11a(vi) was rejected.

9.5.2 Summary of results of Experiment 3b

This section of the experiment tested on the carry-over effect of regulatory fit, induced incidentally from experience in prior task performance, on persuasiveness of information.

A 2 x 2 ANOVA analysis has been carried out to test the existence of this carry-over effect. Results of ANOVA analyses, as summarized in Table 9.7, suggested no carry-over effect of regulatory fit / misfit on participants' judgments in this section.

Table 9.7 Experiment 3b – ANOVA analyses

Experiment 3b	**Estimation**	**Likelihood Assessment**	**Confidence** (H11)
Hypotheses testing (Existence of differences)			
Regulatory foci (H1a)	0.040	2.288	0.139
Fit vs. misfit	0.027	1.434	2.102
Promotion focused (fit vs. misfit)	1.577	0.263	0.689
Prevention focused (fit vs. misfit)	1.352	1.366	1.422
All treatment groups	0.999	1.267	0.773
Between misfit groups	1.571	2.022	0.224
Manipulation check (Existence of differences in groups)			
Strategic means (eager vs. vigilant)	**3.013***	0.073	0.087

**significant at 0.05 level *significant at 0.10 level

In the first required judgment (Experiment 3b-1), the pattern of responses (as plotted in Figure 9.9) is in agreement with the prediction made based on the effect of persuasion fit being carried into this section. However, its impact on judgment was too small to establish its significance. Variations in responses was found associated the manipulation of strategic means (eager versus vigilant) applied in the induction task ($t(122) = 1.736$, $p < 0.10$). Those assigned to the manipulation setting instructing individuals to apply eager means in the task (as shown in Figure 9.9, promotion focus fit group and prevention focus with misfit group), made higher estimations from those assigned to the task applying vigilant means (prevention focus fit group and promotion focus misfit group). This difference was also supported by results from both Mann-Whitney's U test and Kruskal-Wallis Test ($p < 0.05$).

In the second required judgment (Experiment 3b-2), significant variations in responses were detected between the two groups of participants who applied eager means in manipulation task (as shown in Figure 9.10, the prevention focus misfit group and promotion focus fit group) ($t(42) = -2.291$, sig. = 0.027). No difference was found related to differences in the settings of the manipulation tasks (eager versus vigilant) that individuals had been assigned to. In addition, the primed regulatory foci were not significantly related to differences in judgments ($F = 2.288$, $p > 0.10$), which means the difference in responses between the two groups cannot be explained by the differences in their regulatory foci. Therefore, it can be concluded that regulatory fit / misfit induced incidentally had impacted on individuals' judgment in this task (Experiment 3b-2), though the effect was not statistically significant.

Participants' confidence in their judgments was not associated with regulatory fit versus misfit induced.

As reported earlier in Section 9.5.1.3, responses seemed to suggest a possible rebound in judgment in the likelihood assessment task (Experiment 3b-2). Promotion focused participants were expected to indicate higher likelihood than prevention focused participants. However, the result suggested the opposite. In addition, prevention focused participants, who had experienced regulatory misfit gave the highest estimates in this judgment amongst all groups. It is also expected that, as being influenced by the carry-over effect of regulatory fit, promotion focused individuals would gave higher estimates than others who experienced regulatory misfit earlier. However, it turned out the contrary was found.

9.6 Experiment 3c – Recommendation

The final task of this experiment required participants to assess the total amount that would be generated by the club in order to advice the committee on the planning activities. The decision would be related to the judgments made in the earlier two sections of the experiment. Those who made higher estimations on the amount to be collected in respect of subscriptions and donations should be more likely to suggest increasing the number of productions to be planned.

Participants were required to indicate their confidence in judgment made in the two likelihood assessment tasks in the earlier two sections (Experiment 3a and 3b). In this section, they were asked to rate their confidence in their final recommendations.

9.6.1 Dependent measures and descriptive results

As exhibited in Table 9.8 below, among the total 121 subjects completed the final task in Experiment 3, 42 of them had reached the conclusion to recommend the committee to plan for more productions (3 plays). 60% of them were primed with prevention focus before entering the experiment and the rest were primed with promotion focus.

Table 9.8 Experiment 3c – Recommendation

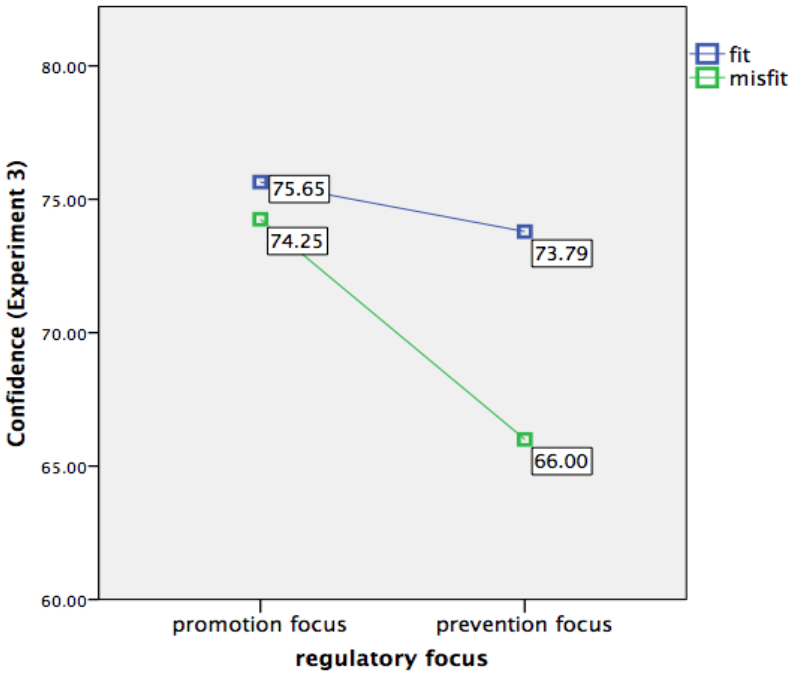
Recommendation	**Groups**				**Total**
	Promotion fit	Prevention fit	Promotion misfit	Prevention misfit	
2 plays	21	24	19	15	79
3 plays	10	9	9	14	42
Total	31	33	28	29	121

On average, induced with regulatory fit, promotion focused participants were more likely to recommend less productions than prevention focused participants. This pattern was consistent with results in the earlier two sections (Experiment 3a and 3b) that prevention focused individuals believed in higher collectability of both target amounts of subscriptions and donations. However, the correlation coefficients between the two likelihood assessments (coefficient = 0.085 and 0.177) and the final recommendation were insignificant ($p > 0.10$).

As illustrated in Figure 9.12 on next page, the group of promotion focused participants

induced with regulatory fit was most confident and the group of prevention focused participants induced with regulatory misfit was found least confident. The difference between the two groups was significant at 0.10 level, sig. = 0.07. However, the difference in confidence ratings indicated by participants was not associated with their experience of regulatory fit versus misfit in the manipulation task. Thus, although regulatory fit / misfit induced at the start of the experiment was found to affect individuals' confidence ratings in this section, the result does not support H11b(iii).

Figure 9.12 Experiment 3c – Confidence in judgment (%)



Note:

1. Promotion focus fit group and prevention focus misfit group: instructed to apply eager strategy in the manipulation task – finish as much as possible in given time
2. Prevention focus fit group and promotion focus misfit group: instructed to apply vigilant strategy in the manipulation task – avoid making mistakes / without need of corrections

All three measures of confidence rating in this experiment were found positively correlated (see Table 9.9 below). As predicted, the more confident individuals were in the first two assessments, the more confident they were in making the final recommendation.

Table 9.9 Correlation between confidence measures across the experiment

Spearman's rho	**Confidence 1**	**Confidence 2**
Confidence 2	0.436*** (p = 0.001)	
Confidence 3	0.473*** (p = 0.001)	0.550*** (p = 0.001)

*** significant at 0.01 level

Analyses on variance were conducted on the data obtained in Experiment 3c. Results were summarized in Table 9.10 below. The recommendation made was found to be significantly different between prevention focused participants who were induced with regulatory fit at the start of the experiment and others induced with regulatory misfit.

Table 9.10 Experiment 3 c – ANOVA analyses

Experiment 3c	**Recommendation**	**Confidence**
Hypotheses testing (Existence of differences)		
Regulatory foci	0.315	1.592
Fit vs. misfit	1.507	1.456
Promotion focused (fit vs. misfit)	0.001	0.062
Prevention focused (fit vs. misfit)	**2.963***	2.177
All treatment groups	1.102	1.256
Between misfit groups	1.528	1.583
Manipulation check (Existence of differences in groups)		
Strategic means (eager vs. vigilant)	1.463	0.614

**significant at 0.05 level *significant at 0.10 level

9.7 Validity check and Robustness

Correlations between the measures taken in each experiment were checked to confirm that the experiment is logically constructed (see statistics as presented in Table 9.11 below).

Table 9.11 Correlation between measures in Experiment 3 (Spearman's rho)

Experiment 3a	Upper bound	Lower bound	Likelihood
Lower bound	0.410***	-	
Likelihood	0.333***	0.201**	-
Confidence	0.263***	0.001	0.239**
Experiment 3b	Donation	Likelihood	
Likelihood %	0.482***		
Confidence	0.374***	0.555***	
Experiment 3c	Upper bound 3a	Lower bound 3a	Donation 3b
Recommendation	0.248***	0.219**	0.142

*** significant at 0.01 level **significant at 0.05 level

Using Spearman's rho, it was confirmed that dependent measures in all three sections of the experiment were correlated. Participants, who believed in a higher probability of getting more from subscriptions, would also indicated higher estimates of the amount of total revenue from subscriptions. The measures taken in Experiment 3b were also correlated: The higher the estimated amount of donations, the higher the likelihood of getting £3,000 from donations. Confidence was also found correlated to the judgments made in this section. Correlation was found between the recommendation in Experiment 3c and estimation judgments made earlier in Experiment 3a.

More robust checks had also been conducted using non-parametric test. Kruskal-Wallis statistics were used to test the distributions of the responses from each treatment group. No differences were found across all treatment groups in Experiment 3 (see Table 9.12 below). Hence, results obtained from analysis on responses using parametric tests (ANOVA and independent t-tests) are reliable.

Table 9.12 Kruskal-Wallis test of whether the distribution is the same across all 4 groups

Dependent measures	Sig.
1.Upper bound in Experiment 3a	0.724
2. Lower bound in Experiment 3a	0.170
3. Donations in Experiment 3b	0.274

Statistics from Mann-Whitney's U test and Moses test of extreme reactions were summarized in Table 9.13 below.

Table 9.13 Robustness test – Mann-Whiney's U test and Moses test of extreme reaction

Dependent Measures	**Manipulation task** (emphasis on speed vs accuracy)		**Incidental fit** (fit vs. misfit)		**Differences in regulatory foci** (Promotion vs. Prevention)		**Promotion misfit vs. Prevention misfit**	
	U test	Moses	U test	Moses	U test	Moses	U test	Moses
1. Lower bound (3a)	0.317	**0.001** ***	0.996	**0.001** ***	**0.027** **	**0.001** ***	0.780	**0.001** ***
2. Upper bound (3a)	0.659	0.112	0.913	0.472	0.602	0.421	**0.066** *	0.371
3. Likelihood (3a)	0.838	0.802	0.400	0.327	0.944	0.315	0.915	0.802
4. Confidence (3a)	**0.042** **	**0.050** **	0.926	**0.079** *	0.678	0.104	0.114	0.931
5. Donations (3b)	**0.049** **	0.586	0.996	1.000	0.958	0.952	0.156	1.000
6. Likelihood (3b)	0.875	0.110	0.338	0.660	0.120	0.500	0.195	0.952
7. Confidence (3b)	0.818	0.869	0.213	0.590	0.716	0.290	0.631	0.500
8. Recommendation (3c)	0.227	**0.001** ***	0.221	**0.001** ***	0.574	**0.001** ***	0.219	**0.001** ***
9. Confidence (3c)	0.288	0.514	0.621	0.641	0.132	0.312	0.108	0.835

*** significant at 0.01 level **significant at 0.05 level *significant at 0.10 level

The statistics of Moses test of extreme reactions suggested significant association between individuals' judgment in Experiment 3a and their incidental experience of regulatory fit versus misfit, which supports the existence of a persuasion effect of regulatory fit induced incidentally from experience in prior task performance. The influence of this persuasion fit effect on judgments in Experiment 3a was also found significantly related to individuals' final recommendation in Experiment 3c.

Significant association was found between individuals' regulatory foci and their responses in the estimation task in Experiment 3a, as indicated by the lower bound of the range estimated. This confirms the result of parametric tests reported earlier in this chapter (in Section 9.4.1) that differences in regulatory foci leads to different judgments made (H1a(ix)).

Results from non-parametric tests suggest significant variations in responses between the two groups induced with regulatory misfit in the two measures taken in the first estimation task in Experiment 3a-1. This is consistent with the result from parametric tests (reported earlier in Section 9.4.1), based on which, H12b(iv) has been rejected.

Moreover, individuals' recommendation (to produce either 2 plays or 3 plays) was found to be affected by the treatment conditions in the experiment. Both the priming of regulatory foci and manipulations settings applied for regulatory fit / misfit induction was found to be significantly associated with responses in this task using Moses test.

However, statistics of non-parametric tests on association between responses in the experiment and the manipulation settings applied suggest a possible threat to the validity of results. The eager versus vigilant strategies applied in the manipulation task were found to be significantly associated with responses in the first required task in the experiment (Experiment 3a-1) and individuals' confidence ratings measured later in that section (Experiment 3a-3). The variation in manipulation settings applied was also found to be related to other dependent measures in other two sections in this experiment – responses in the estimation task (Experiment 3b-1) in the donations section and in the final recommendation task (Experiment 3c).

9.8 Summary and conclusions

In this experiment, regulatory fit / misfit was induced in the separate manipulation task before commencing the main experiment. Participants were required to perform a reconciliation task to check a list of bookings received against the cashbook for payment received. The instruction of this manipulation task either emphasized on speed, to trigger adoption of eager means in performance; or emphasized on accuracy, to trigger adoption of vigilant means. A summary of results of hypotheses testing is shown in Table 9.14 below.

Table 9.14 Summary of results of hypotheses testing in Experiment 3

H1: Promotion focused people are more sensitive to and tend to be primarily concerned with 'positive' accounting information; whereas, prevention focused people are more sensitive to and tend to be primarily concerned with 'negative' accounting information.			
H1a: Therefore, individuals with different regulatory foci will make different judgments as a result of differences in their sensitivities to 'positive' versus 'negative' accounting information processed.	Exp 3a-1 Exp 3a-2 Exp 3b-1 Exp 3b-2	H1a(ix) H1a(x) H1a(xi) H1a(xii)	**Accepted** Rejected Rejected Rejected
H8: (Incidental) Regulatory fit improves the persuasiveness of positive accounting information among promotion focused individuals.			
H8a: in likelihood assessments; and,	Exp 3a-2	H8a	Rejected
H8b: in estimations.	Exp 3a-1	H8b	Rejected
H9: (Incidental) Regulatory fit improves the persuasiveness of negative accounting information will be improved among prevention focused individuals.			
H9a: in likelihood assessments; and,	Exp 3a-2	H9a	Rejected
H9b: in estimations.	Exp 3a-1	H9b	Rejected
H10: The effect of persuasion fit induced incidentally affects the persuasiveness of accounting information processed and leads to variations in judgments among people.			
H10a: in likelihood assessments; and,	Exp 3a-2	H10a	Rejected
H10b: in estimations.	Exp 3a-1	H10b	Rejected
H11: Individuals are more confident about their judgment when induced with regulatory fit.			
H11a: in likelihood assessment; and,	Exp 3a-3 Exp 3b-3	H11a(v) H11a(vi)	Rejected Rejected
H11b: in final recommendation.	Exp 3c	H11b(iii)	Rejected
H12: Individuals are likely to take more careful thinking in processing the messages when induced with regulatory misfit, and therefore, there will be no difference between judgments by individuals with different regulatory foci.			
H12a: in likelihood assessments; and,	Exp 3a-2	H12a(iv)	**Accepted**
H12b: in estimations.	Exp 3a-1	H12b(iv)	Rejected

Experiment 3a was an explicit examination of the effect of incidental fit on the persuasiveness of information in estimation judgment and likelihood assessment. Results from Experiment 3a slighted suggested that difference in regulatory fit and misfit induced incidentally matters in judgments in this section. In the first two tasks in this section (Experiment 3a-1 and 3a-2), the association between variations in judgments and the effect of persuasion fit were not found significant using parametric test (ANOVA and independent t- test). Whereas, results from non-parametric tests (e.g., Moses Test of Extreme Reactions) signal significant difference in responses between the two promotion focused groups (induced with regulatory fit versus misfit) in the estimation task (Experiment 3a-1) ($p < 0.01$). Differences in regulatory foci among participants were also found to be associated with variations in responses in this task ($p < 0.05$). As measured by the width of ranges, variations in judgment were also found significant between the two groups (promotion focused versus prevention focused) induced with regulatory misfit. Results of the likelihood assessment (Experiment 3a-2) rejected the existence of variations in responses associated with regulatory fit versus misfit induced. All treatment groups made statistically the same judgment. It is suspected that the results might be affected by the answer panel (as shown in Figure 6.6 in Chapter Six) used, which forced more attention paid in the judgment. The resulting high elaboration processing lessened the impact of regulatory focus and regulatory / persuasion fit.

Experiment 3b tested on the possible carry-over effect of regulatory fit on individuals' judgments. It is expected that the effect of persuasion fit induced incidentally in the manipulation task would continue to affect individuals' judgments in this section. In the first judgment in this section (estimation of amount of donations to be collected, Experiment 3b-1), the pattern of responses was congruent with the expectation that regulatory fit / misfit would continue to have a persuasion effect among individuals and influence their judgment. However, the impact of the carry-over effect of regulatory fit / misfit was too small to establish its significance. In the second judgment (likelihood assessment, Experiment 3b-2), possible rebound in judgments were found to be associated with individuals' earlier experience of regulatory fit / misfit. Results from non-parametric tests also suggest variations in responses, among treatment groups that might be associated with regulatory fit / misfit induced earlier, supporting the existence of a carry-over effect of regulatory fit / misfit.

In Experiment 3c, the final advice to the committee, prevention focused individuals were found to be more likely to recommend more productions under regulatory misfit than

under fit (t (57) = 1.708, one-tail sig. = 0.047). Difference in individuals' confidences in this recommendation were found marginally significant between the promotion fit group and prevention misfit group ($p < 0.10$), indicating an interactive effect of regulatory focus and regulatory fit. Furthermore, participants' confidence ratings were correlated across all three measures taken in each section, which means individuals' confidence in judgment had been built up.

In conclusion, this experiment has demonstrated how incidental experience can be manipulated to induce regulatory fit / misfit that potentially affect sequential judgments. Non-parametric statistics revealed strong association between responses in first judgment in this experiment and regulatory fit / misfit induced incidentally. This result is consistent with the finding by Koenig et al. (2009) that experience in prior task performance will impact on performance in the task 'immediate after'. This experiment also tested on the possible carry-over effect of (incidental) regulatory fit. Findings suggest possible rebound in judgment associated with prior experience of regulatory fit / misfit. Therefore, being carried over to sequential tasks, regulatory fit / misfit continue to influence later judgments but its effect seems hard to predict.

Chapter 10: Experiment 4 – Regulatory focus and judgment under uncertainty

10.1 Introduction

People are not always rational when making decisions and they rely on heuristics as simple 'rules of thumbs'. Chapter Two generally reviewed prior literature of research on heuristic and biases in audit judgment (Section 2.3). Evidence of cognitive limitation in audit has been documented in the literature. Some research has argued that aspects of audit such as expertise and accountability potentially inhibit the adverse effects of cognitive biases and limitations on audit judgment. Empirical findings suggest that difference in regulatory foci can be applied to explain differences among people in cognition, behaviour, and emotions. It is therefore proposed in this thesis that Regulatory Focus Theory can be extended to audit research and can advance existing knowledge of audit judgment and decision-making, e.g., help explain why some auditors fall into judgmental fallacies and others do not. This theory has not yet been applied to audit judgment research or examined in audit relevant tasks.

Attempting to conduct an experiment to employ task relevant to audit, this experiment (Experiment 4) investigated the issue of the relevance of accounting information in judgment over uncertainty, and sought to demonstrate the effect of regulatory focus on individuals' consideration of accounting information through an investigation boundary setting task. Specifically, it examined the influences of regulatory focus on the significance of information in judgment over uncertainty by manipulating information processing style (procedural vs. intuitive) (Experiment 4b) and temporal distance of past accounting information (Experiment 4a).

It has been discussed in the introductory chapter (Chapter One) that regulatory focus influences individuals' sensitivity to information about positive outcomes – 'good things' in common sense, and negative outcomes – 'bad thing' in life. Applying this effect of regulatory focus on individuals' sensitivity to different information in audit judgment, it is proposed in this thesis that promotion focused people are more sensitive to and tend to be primarily concerned with 'positive' accounting information, e.g., positive profit figures; whereas, prevention focused people are more sensitive to and tend to primarily concerned with 'negative' accounting information, e.g., bad debts (H1). Information considered as

more relevant to the judgment shall be of higher significance in determining the judgment made. Thus, the perceived significance of past accounting information in its relevance to the judgment is associated with difference in regulatory focus orientations, which would potentially lead to different judgments among people (H1a). Prior research consistently suggest potential overreactions to loss and negative outcomes associated with prevention focus, e.g., loss aversion, sunk cost errors and risk seeking behaviour to recover a loss are more characteristic of prevention focus. It is therefore expected that prevention focused individuals are more sensitive to 'negative' accounting information than promotion focused individuals (H1b).

Research on intertemporal choice (i.e., the choice among options with different outcomes at different points in time) manifested devaluation of future outcomes that utility is discounted over temporal distance. Time is also an important component influencing judgment. Information about events that are more temporally distant away is considered as less relevant. Prior literature has established a link between regulatory focus and temporal distance (Pennington and Roses, 2003). Under greater temporal distance, people think they have sufficient time and resources, and therefore they feel free to engage in a promotion focus; whereas as the temporal horizon decreases, individual starts to realize resource depletion and might prefer a more cautious approach of goal attainment which thereby increase the importance of prevention focus. Although existing research all looked at temporal distance of future events and none of them were in fields related to accounting and auditing, it is yet reasonable to expect individuals' regulatory focus is associated with the perceived relevance of accounting information in judgment over uncertainty. Therefore, it is hypothesized that the effect of temporal distance on individuals' perception of the relevance of the accounting information is associated with differences in their regulatory focus orientations (H13).

Halamish, Liberman, Higgins and Idson (2008) applied regulatory focus to examine the distinct effect of promotion versus prevention focus under Prospect Theory. People with prevention focus were reported to discount more on negative prospect (the perceived intensity of losses) over uncertainty than people with promotion focus. Prospect Theory modeling utility function of value under uncertainty, while temporal discounting concerns how utility is discounted over time. Hence, it is reasonable to assume a similar effect of regulatory focus on temporal distance. Compared with people with promotion focus, participants with prevention focus can be expected to discount more on the relevance of

accounting information over longer temporal distance and discount less over shorter temporal distance in their judgment (H14).

Moreover, psychology studies on judgment over uncertainty often examine the effect of heuristics and bias on individuals' intuitive judgment (e.g., the series of experiments in the work by Kahneman and Tversky, 1979 and 1984) rather than procedural judgment made from more effortful thinking. Auditors most often make judgment in procedural processing style. They make calculations, interpreting information gathered, and running audit tests on accounting information available and evidence gathered. Compared with intuitive processing style to make direct reflection on information, procedural style requires more effort in processing information and forces people to pay more attention on information processed, even those considered as less relevant, e.g., discounted significance in its relevance over time. The impact of differences in sensitivity to 'positive' / 'negative' accounting information on judgments among individuals with different regulatory foci can be expected to be reduced if information is processed procedurally (H15).

The above hypotheses are tested in this experiment (Experiment 4) that was conducted as an internet-based experiment. Facilitated by SurveyMonkey, this experiment was constructed using the site's design tool that offered features like random assignment and programmed route of questions. Experimental materials were distributed online in the form of a questionnaire. Participants started this experiment by answering a few questions about their education background, communication and math skill, etc. These questions were included mainly for the purpose to make participants feel more serious and more committed to the experimental task. Participants were then instructed to complete Regulatory Focus Questionnaire [30], which measures their chronic regulatory focus orientation. After that, participants were randomly assigned to one of the treatment conditions and made judgment based on case material given as required. At the end of this experiment, participants were asked whether they would like to modify their judgment before submitting the responses. Liberman, Idson, Camacho and Higgins (1999) examined the effect of regulatory focus disposition on the behavior of changing plans. Promotion focused people were found to be more open to alternative plans and more likely to change original plan than prevention focused people. It is expected that a similar effect would be found in participants' choice of changing initial judgment.

[30] Regulatory Focus Questionnaire is attached as an appendix (See Appendix 1).

10.2 Participants

Research subjects were invited to participate in this experiment via email invitation with a link to the experiment online on SurveyMonkey.com.

The email invitations were sent out to targeted groups at the beginning of 2012. By the time of the closure of the online survey in September 2012, 177 valid responses, out of a total of 221 responses received, had been collected[31]. Subjects included, from the UK, 91 undergraduate students from Accounting and Finance of University of Glasgow and University of Strathclyde; and 130 from China, students enrolled in Advanced Financial Accounting class in SanMing University, accounting staffs from two big international firms in China, as well as a group of MBA students from JiaoTong University.

The experimental material was developed based on the case in Kinney and Uecker (1982). The required judgment in the experiment was to indicate the investigations boundaries based on given information of gross profits and profit ratios of the past five years presented in a table. Using this simplified accounting and auditing setting, the case material is accessible to individuals with moderate understanding of accounting values and ratios. Advanced knowledge or professional experience in audit was not essential for participation in this experiment. Hence, participants in this experiment, consisted of accounting practitioners, accounting students, and MBA students, are all eligible subjects for this experiment. There is no reason to expect difference in judgment due to attributes like gender and age. In addition, the case information was presented in the format of figures and ratios, which means there is no linguistic restriction[32] in this experiment. Versions of the questionnaires were produced in both English and Chinese to allow access to a wider population of subjects.

[31] The dependent variables were measured in the second section of the experimental materials. Among all responses collected, forty-four incomplete responses were omitted as those participants only filled in questions in section one.

[32] A test of variance has been conducted to confirm the assumption of no differences in responses associated with different language used in the experimental materials.

10.3 Experimental design and materials

This experiment was designed to allow for the examination, via an investigation boundary setting task, of the effect of regulatory focus on the perceived relevance of past accounting information. It employs a fractional 2 (regulatory focus: promotion vs. prevention) x 2 (manipulated temporal distance: normal vs. smaller) x 2 (information processing style: procedural vs. intuitive) between-subjects design. The regulatory focus disposition of each research subject was measured using the Regulatory Focus Questionnaire (RFQ) [33] (Higgins et al. 2001) before they began to perform the boundary estimation task. Following Higgins' scoring instruction[34], subjects were identified as being promotion-focused or prevention-focused, determined by the higher score in either of the regulatory foci traits. The other two independent variables were manipulated by altering the temporal distance of past information – 5 years ago ('normal') vs. 2 years ago ('proximal') (see Figure 10.1 and 10.2) and by altering the information processing style – 'procedural' (requesting extra effort in the judgment process, i.e., to work out the essential information before making judgment) vs. 'intuitive' (information available for direct reflection).

10.3.1 Fractional between-subject design

This experiment is managed following a fractional experimental design. The combination of manipulation is chosen carefully and omitted unnecessary treatment condition in the experiment. The control group is the treatment condition applied that all information was given (without the need to make calculations), and the temporal distance of the stimulus being set at five years ago. Experiment 4a manipulated the temporal distance of the stimulus and compares responses to different temporal distance applied (control group / treatment 1 vs. treatment 2). Experiment 4b manipulated the information processing style by asking some participants to calculate the ratios and compares responses under different information processing style (control group / treatment 1 vs. treatment 3).

As shown in Table 10.1 below, disregarding the dimension of regulatory focus (promotion vs. prevention), the omitted combination is where the setting of 'procedural' (requiring computation of ratios) crosses with the setting of 'proximal' temporal distance.

[33] See Appendix 1.

[34] The scoring instruction is shown at the end of Appendix 1.

Table 10.1 Fractional experimental design

	Normal (temporal distance) Low gross profit ratio five years ago	Proximal Low gross profit ratio two years ago
Intuitive All past values and ratios provided	Treatment 1 (control group)	Treatment 2
Procedural Requiring computation of ratios	Treatment 3	***Omitted***

Participants were randomly assigned to treatment conditions in Experiment 4a and 4b. Among the 177 valid responses collected, 90 of them were assigned to treatment condition 1; 35 were in treatment condition 2; and, 52 were in treatment condition 3.

10.3.2 Case materials

The experiment materials were constructed based on materials used in Kinney and Uecker (1982).

Kinney and Uecker (1982) constructed an analytical review case in their study to examine the effect of anchoring and adjustment[35] in audit judgment. The case was about a representative small manufacturing firm[36] and the task was to indicate the investigation boundaries. Given the firm's unaudited book values for the year and audited accounting values for the previous two years, research subjects were asked 'to indicate a range of values beyond which they felt that an investigation of the unaudited values should be conducted, assuming no major change in the recent historical relationships' (p58). In order to test whether the judgment was affected by the exposure of the unaudited book values for the year, Kinney and Uecker (1982) applied a convenient manipulation by designing two versions of the "unaudited" book values with one version of the case presenting an obvious increase in gross profit but a clear drop in the other version. They found that the boundary decisions tended to vary depending on the "unaudited" value given.

[35] Audit JDM research on anchoring and adjustment heuristics suggested that auditors sometimes rely on an unaudited book value to make estimates. Starting from this anchor, they make adjustment accordingly to get the final estimation (Trotman, 1998; Tversky and Kahneman, 1974).

[36] The case was first used in the study by Kinney, W. R., Jr. (1979), "The Predicted Power of Limited Information in Preliminary Analytical Review: An Empirical Study", Supplement to *Journal of Accounting Research* (1979), pp. 148-165.

Adopting a similar structure, the case information used in this experiment gave research subjects past five years' accounting values of a small manufacturing business[37], including 'Sales', 'Cost of Sales' and 'Gross Profit' values. The material was constructed so that the gross profit ratio of this small business was much lower in one year than in the other four years. This low gross profit ratio is the stimulus in the experimental setting.

Figure 10.1 The case material – 'normal (temporal distance)' condition / 'intuitive' condition

Read the scenario and make judgment as required.

The following are the sales figures of a small manufacturing firm. The firm has stable relationship with its main suppliers and customers. Therefore, there should be no reason to expect major changes from recent historical relationships.

The figures at the year end of the past five years are shown below (all figures are in 000s):

	On 31/03/2007	On 31/03/2008	On 31/03/2009	On 31/03/2010	On 31/03/2011
Sales	24,265	20,740	22,066	23,875	22,941
Cost of Sales	20,868	16,343	17,741	19,005	17,641
Gross Profit	3,397	4,397	4,325	4,870	5,300
Gross Profit Percentage	14%	21.2%	19.6%	20.4%	23.1%

Note:
1. The low gross profit ratio (14%) is designed as the stimulus. It was positioned at 'five years ago' (the year ended on 31/03/2007) in the 'normal (temporal distance)' condition.
2. The 'normal (temporal distance)' condition of Experiment 4a is the control group in this experiment, which is also the 'intuitive' condition of Experiment 4b.

As presented in Figure 10.1, the gross profit ratio of the year ended on 31/03/2007 was 14%, which is much lower than the gross profit ratio in the other years which ranged from 19.6% to 23.1%. Participants were asked to indicate the range of possible values of the 'current year' by setting the boundaries.

In the case material used in the 'normal (temporal distance)' condition (as shown in Figure 10.1), the low gross profit ratio (the stimulus) was in the year ended on 31/03/2007 – five years ago; whereas in the 'proximal' condition (as shown in Figure 10.2), the low ratio was of the year ended on 31/03/2010, which is two years before the 'current year' in the task,

[37] The experiment is executed in early 2012 so that the past five years is counting from the financial year ended on 31/03/2007 to the financial year ended on 31/03/2011.

with a shorter distance in time. The positions of the accounting values for the rest four years were slightly different in the two variations of the case material. This was to avoid suggesting increasing or decreasing trend of profit ratios.

Figure 10.2 The case material – 'proximal' condition

The figures at the year end of the past five years are shown below (all figures are in 000s):

	On 31/03/2007	On 31/03/2008	On 31/03/2009	On 31/03/2010	On 31/03/2011
Sales	22,066	23,875	20,740	24,265	22,941
Cost of Sales	17,741	19,005	16,343	20,868	17,641
Gross Profit	4,325	4,870	4,397	3,397	5,300
Gross Profit Percentage	19.6%	20.4%	21.2%	14%	23.1%

Note: The low gross profit ratio (14%) – the stimulus, was positioned at 'two years ago' (the year ended on 31/03/2010) in the 'proximal' condition.

The 'normal (temporal distance)' condition in Experiment 4a is also the 'intuitive' condition in Experiment 4b that all figures were given / available for direct reflection facilitating rapid intuitive reaction to them. The case information given to participants in the 'procedural' condition was the same but the actual ratios were removed. Leaving the last row in the table (as shown in Figure 10.1) empty, participants were required to work out these ratios before identifying the range of possible value of gross profit ratio of the 'current year'.

After indicating the investigation boundaries as required, all participants were exposed with an 'average response' from other participants in this experiment. Facilitating the programming function of online experiment, this 'average response' was automated to be different from individuals' judgment made: Participants who indicated a range with lower bound above 19% received information suggesting that the average response lower boundary was 14%; whereas those individuals who indicated a range with a lower boundary below 19% received information suggesting that the average response lower boundary was 19%. Participants were asked whether they would like to modify their judgment before submitting their responses.

10.4 Experiment 4a – relevance of accounting information and temporal distance

Experiment 4a examined the effect of temporal distance on the perception of relevance of past accounting information under regulatory focus. It employs a 2 (regulatory foci) x 2 (normal or proximal temporal distance conditions) design.

The small manufacturing business in the case had been making profit over the 'past five years'. The gross profit ratios were above 19%, apart from in one year that the ratio was much lower at 14%. The task was to indicate the boundaries of possible gross profit ratio of the current year (ended on 31/02/2012) so that for values fall out of the range, further investigation would be required. Participants in both treatment conditions indicated the range by setting the lower and upper bound. It is expected that this low past ratio (the stimulus) will affect individuals' estimation in this experiment and indicate a smaller value for the lower boundary.

10.4.1 Descriptive results

The temporal distance of the stimulus was manipulated in this experiment to create two treatment conditions –'normal (temporal distance)' condition (five-years ago) and 'proximal' condition with shorter temporal distance (two-years ago). Participants were randomly assigned to one of the two treatment conditions.

The descriptive results of the lower bound, upper bound are exhibited in Table 10.2 below and Table 10.3 on next page.

Table 10.2 Experiment 4a – Lower bound (%)

Lower bound	**N**	**Mean**	**Std. Deviation**	**Existence of differences**	
				T - test	Non-parametric (U-test)
Normal (5 years ago)	92	18.4652	3.58460		
Promotion focus	60	17.9050	3.71531	T (87) = -2.403**	Sig. = 0.028**
Prevention focus	29	19.8103	3.01903		
Smaller (2 years ago)	35	15.6714	3.00965		
Promotion focus	17	16.0294	3.51101	T (28.583) = 0.850*	Sig. = 0.683
Prevention focus	17	15.1471	2.44799		

** significant at 0.05 level * significant at 0.10 level

Lower bound responses (see Table 10.2) were significantly different between the two treatment conditions of different temporal distance applied, F = 16.745, sig. = 0.001. Participants who received case information with a low gross profit ratio 5 years ago indicated higher lower bound (M = 18.47%) than those who received case information with a low ratio 2 years ago (M = 15.67%), t (125) = 4.092, p < 0.01.

Table 10.3 Experiment 4a – Upper bound (%)

Upper bound	N	Mean	Std. Deviation	Existence of differences	
				T - test	Non-parametric (U-test)
Normal (5 years ago)	90	25.2833	2.75808		
Promotion focus	59	25.6441	2.75282	T (85) = 1.75*	Sig. = 0.024**
Prevention focus	28	24.5357	2.77532		
Smaller (2 years ago)	35	24.9000	1.90510		
Promotion focus	17	24.7941	1.92888	T (32) = -0.90	Sig. = 0.946
Prevention focus	17	24.8529	1.88551		

** significant at 0.05 level * significant at 0.10 level

Upper bound responses (shown in Table 10.3 above) were not associated with the temporal distance of the information, t (123) = 0.754, p > 0.10. Participants made similar upper bound responses in both treatment conditions (M = 25.28% and 24.9%).

Table 10.4 Experiment 4a – width of range (%)

Width of range	N	Mean	Std. Deviation	Existence of differences	
				T - test	Non-parametric (U-test)
Normal (5 years ago)	90	6.78	4.09088		
Promotion focus	59	7.7746	3.86441	T (85) = 3.71***	Sig. = 0.001***
Prevention focus	28	4.5	3.80545		
Smaller (2 years ago)	35	9.2286	4.05177		
Promotion focus	17	8.7647	4.99724	T (26.584) = -0.662*	Sig. = 0.683
Prevention focus	17	9.7059	3.07235		

*** significant at 0.01 level * significant at 0.10 level

Subtracting the upper and lower bound, the width of range (see Table 10.4 above) determined was significantly associated with differences in temporal distance of the information, F = 9.076, p < 0.01. When the stimulus was more temporally distant, in the past, the range indicated was narrower (M = 6.78%) compared with condition that low ratio was in the less distant past (M = 9.23%), t (123) = -3.013, p < 0.01.

Temporal distance was found to affect the relevance of the past low ratio in judgment concerning the lower boundary of the range. Information with greater temporal distance away in the past was perceived as less relevant. Therefore, it can be concluded that the manipulation on temporal distance in Experiment 4a was successful.

10.4.2 Hypotheses testing

The effect of regulatory focus

It is hypothesized that individual's perception of relevance of past accounting information is associated with regulatory focus (H1). Hence, individuals with different regulatory foci can be expected to make different judgments in this experiment (H1a(xiii)). Prevention focused participants would be more concerned with the existence of the low past ratio so that their responses should be more affected than promotion focused participants (H1b(i)).

In the 'normal temporal distance' condition, the relevance of this ratio was greatly discounted by prevention focused participants. The mean of their lower boundary responses is 19.81%, significantly higher than the average of responses by all participants, $t(54.6) = -1.996$, one-side sig. = 0.026, $p < 0.05$. As ratios for the rest four years in the case is ranging from 19.6% to 23.1%. The low ratio of 14% is clearly of less significance in its relevance in setting the boundary. Responses from promotion focused participants (M = 17.91%) were significantly lower, $F = 5.773$, $t = -2.403$, $p < 0.05$. This difference was also significant using Mann-Whitney U test, sig. = 0.028. In addition, upper bound responses were marginally different between individuals with different regulatory focus, $F = 3.062$, $t = 1.75$, $p < 0.10$, which is also significant using Mann-Whitney U test (sig. = 0.024). Promotion focus individuals set higher value for the upper bound (M = 25.64%) than prevention focus ones (M = 24.54%). In respect of the width of range, promotion focused individuals indicated wider range (M = 7.77%) than prevention focused individuals (M = 4.5%), $F = 13.767$, $t = 3.71$, $p < 0.01$.

In the 'smaller temporal distance' condition, the relevance of the low ratio closer in time was perceived as being higher by prevention focused participants in this judgment so that their lower boundary indicated (M = 15.15%) was lower than promotion focused participants (M = 16.03%), $t = 0.850$, $p < 0.10$. Prevention focused participants also indicated wider range of possible values (M = 9.71%) than promotion focused ones (M =

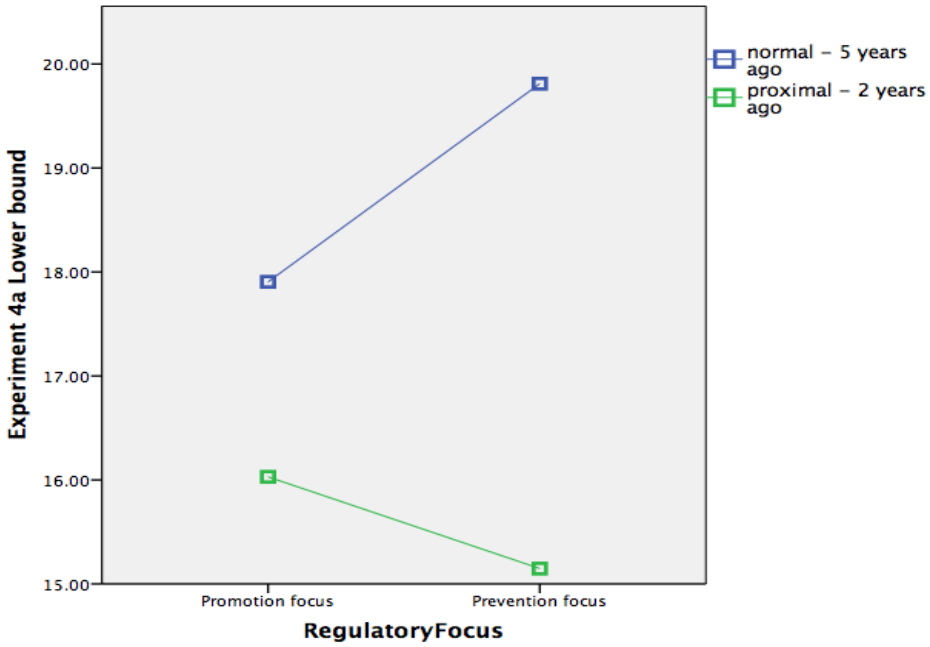
8.76%), t = - 0.662, p < 0.10. Upper bound responses were not related to difference in regulatory focus in setting the upper boundary.

Across two conditions, variations in responses (measured by the lower bound and the width of range) were found to be associated with differences in regulatory focus, which supports the hypothesis (H1a(xiii)). When the temporal distance is smaller (2 years ago), responses by prevention focused participants were more influenced by the stimulus, compared with promotion focused participants; whereas results in the 'normal temporal distance' condition (5 years ago) suggest the opposite. Hence, H1b is accepted in the 'smaller temporal distance' condition but rejected in the 'normal temporal distance' condition.

Regulatory focus x temporal distance

Research on regulatory focus and temporal distance in decision-making is scarce. To add in temporal distance dimension into judgment over uncertainty, this experiment made a feasible assumption that regulatory focus will affect influence individuals' cognition of the temporal distance of the stimulus (H13); and it is expected that the effect of discounting over temporal distance on the relevance of the accounting information is more dominant with prevention focus (H14). Responses from each treatment groups are plotted in Figure 10.3 (lower bound), Figure 10.4 (upper bound) and Figure 10.5 (width of range indicated).

Figure 10.3 Experiment 4a – lower bound (%)



Among promotion focused participants, lower bound responses were higher if the low ratio was five-years ago (M = 17.91%) than in the condition that the low ratio was two-years ago (M = 16.03%), t (75) = 1.859, $p < 0.10$. Prevention focused participants also indicated higher value for the lower boundary when the ratio was five-years ago (M = 19.81% and 15.15%), t (44) = 5.404, $p < 0.01$.

Figure 10.4 Experiment 4a – upper bound (%)

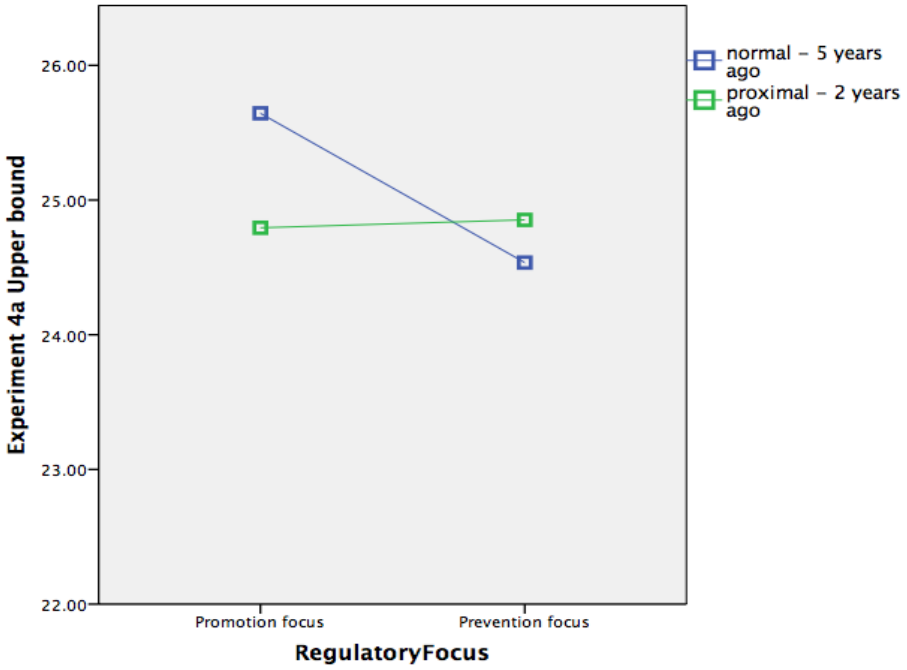
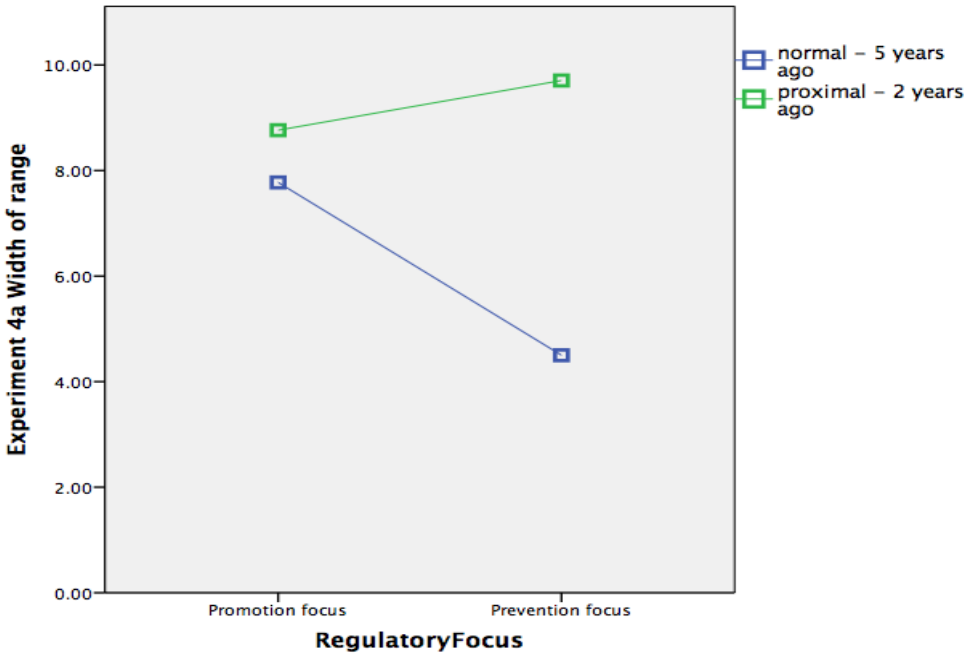


Figure 10.5 Experiment 4a – width of range (%)



Upper bound responses were not significantly different among treatment groups. No association between responses and temporal distances of the low ratio were found among either promotion focused participants, t (74) = 1.189, p > 0.10, or prevention focused participants, t (43) = -0.416, p > 0.10.

As shown in Figure 10.5, among prevention focused participants, the indicated range of the possible ratios was much wider if the low ratio was 'two-years ago' (M = 9.71%) than the range indicated if the low ratio was 'five-years ago' (M = 4.5%), t (43) = -4.769, sig. = 0.001. Promotion focused participants in both treatment groups made similar judgment (M = 7.77% and 8.76%), t (21.81) = -0.755, p > 0.10. The results from the width of range indicated by participants were consistent with the patterns of lower bound responses (as shown in Figure 10.3).

Result from Kruskal-Wallis test suggested significant variations in lower bound responses (sig. = 0.001) and marginal variations in upper bound responses (sig. = 0.074) among the four groups, indicating an interactive effect between differences in regulatory foci and temporal distance on the indication of lower boundary in this task. The variations in width of range determined was also significant, sig. = 0.001. Non-parametric statistics indicated the existence of an interactive effect between regulatory focus and temporal distance on responses in this experiment.

In summary, results in this experiment signify a significant interactive effect between temporal distance and regulatory focus, supporting H13. The prediction that prevention focused participants are more sensitive to manipulation applied on temporal distance of this loss-related information (H14) is also supported. Compared with promotion focused participants, prevention focused participants discounted less on the low ratio when proximal and discounted more when it was more temporally distant away. In addition, over-discounting observed among prevention focused participants in more temporal distant setting was also significant when the comparison was made with all participants in this experiment (sig. = 0.026). Thus, loss-related information was perceived as more relevant among prevention focused individuals if it is closer in time. The impact of different temporal distance was less obvious among promotion focused participants. These results are consistent with the distinct effect of promotion versus prevention focus in discounting of outcome values over uncertainty (Halamish et al., 2008). They supported assumption made earlier that regulatory focus has similar effect on discounting over uncertainty and discounting over temporal distance.

Additionally, consider that this task is to indicate the investigation boundaries so that for values falling out of the boundaries, further investigation will be necessary. Participants with prevention focus are more conservative in setting the boundaries when the stimulus was temporally distant – five years ago; whereas in condition that the stimulus was more proximal – two years ago, its significance in relevance to the boundary setting judgment was overweighed, which significantly brought down the lower boundary. As a result, the range of acceptable value of gross profit ration for the 'current year' has been expanded.

10.4.3 Option to modify judgment

Participants received a message about the average response from other participants. Facilitating the programming tool of the online experiment, the 'average response' they received was automated to be different from their judgment. Those who indicated a range with a low boundary above 19% received information suggesting that the average lower boundary was 14%; whereas those who indicated a range with a low boundary below 19% received information suggesting an average lower boundary judgment of 19%. Participants were then given the option to modify their judgment.

As shown in Table 10.5 below, less than 6% of the participants in this experiment chose to amend their judgment after presenting with different opinion and there is no obvious association between regulatory focus and the decision to modify judgment made.

Table 10.5 Experiment 4a – Option to modify judgment

	Normal temporal distance		**Smaller temporal distance**		Total
	Promotion focus	Prevention focus	Promotion focus	Prevention focus	
Option to modify judgment					
Not to modify	56	29	17	11	113
To modify	4	1	0	2	7
Missing values	0	1	0	4	5
Total	60	31	17	17	125

10.5 Experiment 4b – procedural vs. intuitive judgment

Experiment 4b examined the effect of different information processing style on the perception of relevance of past accounting information under regulatory focus.

The case materials included a table that outlined the Sales, Cost of Sales, and Gross Profit values from year ended on 31/03/2007 to 31/03/2011. Given the past five-year's accounting values, participants were randomly assigned to the 'procedural' condition, to work out the gross profit ratio of each of the past five years before indicating the investigation boundaries of the current year, or the 'intuitive' condition in which the past ratios were given.

Procedural processing of information requires more effortful thinking, which can be expected to reduce the effect of difference in regulatory focus orientations on judgment (H15). The prediction that judgment by prevention focused individuals would be more sensitive to the loss-related stimulus (a low gross profit ratio) was supported by results from Experiment 4a. This effect of prevention focus on the perceived relevance of the low past ratio in the case can be expected to be less significant in the 'procedural' condition. In addition, participants with different regulatory focus are predicted to make similar judgment in the task.

10.5.1 Descriptive results

Descriptive results of lower bound and upper bound responses and results of width of range were exhibited in Table 10.6 (below), Table 10.7 and Table 10.8 (on next page).

Table 10.6 Experiment 4b – Lower bound (%)

Lower bound	N	Mean	Std. Deviation	Existence of differences	
				T - test	U – test
Procedural	52	16.6065	3.84054		
Promotion focus	29	16.0621	4.21489	T (47) = -1.086*	Sig. = 0.241
Prevention focus	20	17.2870	3.32613		
Intuitive	92	18.4652	3.58460		
Promotion focus	60	17.9050	3.71531	T (87) = -2.403**	Sig. = 0.028**
Prevention focus	29	19.8103	3.01903		

** significant at 0.05 level * significant at 0.10 level

Lower bound responses (as shown in Table 10.6) were significantly different between the two applied treatment conditions of different information processing style, F = 8.482, sig. = 0.004. Participants indicated lower value for the lower boundary (M = 16.60%) if they made their own calculation to compute the ratios than those were presented with the ratios in the case material received (M = 18.47%).

Table 10.7 Experiment 4b – Upper bound (%)

Upper bound	N	Mean	Std. Deviation	Existence of differences	
				T - test	U - test
Procedural	50	25.1552	2.04587		
Promotion focus	28	25.1343	1.92732	t (45) = 0.121	sig. = 0.699
Prevention focus	19	25.2105	2.37063		
Intuitive	90	25.2833	2.75808		
Promotion focus	59	25.6441	2.75282	t (85) = 1.75*	Sig. = 0.024**
Prevention focus	28	24.5357	2.77532		

** significant at 0.05 level * significant at 0.10 level

Upper bound responses (as shown in Table 10.7) were not associated with the difference in information processing styles (procedural versus intuitive), F = 0.083, p > 0.10. Participants made similar upper bound responses in both treatment conditions (M = 25.16% and 25.28%).

Table 10.8 Experiment 4b – Width of range (%)

Width of range	N	Mean	Std. Deviation	Existence of differences	
				T - test	U – test
Procedural	50	8.6344	3.84478		
Promotion focus	28	9.2129	3.81795	T (45) = 1.098	sig. = 0.134
Prevention focus	19	7.9347	4.05940		
Intuitive	90	6.78	4.09088		
Promotion focus	59	7.7746	3.86441	T (85) = 3.71***	sig. = 0.001
Prevention focus	28	4.5	3.80545		

*** significant at 0.01 level

Subtracting the upper and lower bound, the width of range (as shown in Table 10.8) was significantly associated with differences in information processing style, F = 6.890, sig. = 0.010. Participants who worked out the ratios by their own indicated wider range of possible values for the gross profit of the year (M = 8.34%) than those received materials with ratios already given (M = 6.78%), F = 6.890, p < 0.01.

The results suggested that differences in information processing style affect the relevance of the past low ratio in indication of lower boundary of the range. Results indicated a relationship between procedural processing style and the perceived relevance of the past accounting information that information processed using more effortful style was perceived as more relevant.

10.5.2 Hypotheses testing

The effect of regulatory focus

In the 'procedural' condition, promotion focused individuals set lower boundary at 16.06%, on average, which is marginally lower than the boundary indicated prevention focused individuals (M = 17.29%), t (47) = -1.086, $p < 0.10$. Upper bound responses were not associated with difference in regulatory focus, $p > 0.10$. Promotion focus individuals and prevention focused individuals made similar response in upper bound indication (M = 25.13% and 25.21%). In respect of the width of range, promotion focused individuals indicated wider range (M = 9.21%) than prevention focused individuals (M = 7.93%). This difference in width of range indicated was not statistically significant, $p > 0.10$.

The 'intuitive' condition is also the 'normal temporal distance' condition in Experiment 4a. The results were presented and discussed earlier in the previous section (Section 10.4).

Across the two conditions of different information processing style applied, variations in lower bound responses were significantly related with differences in regulatory focus, F = 4.879, $p < 0.05$. No significant relationship was found between participants' responses in setting the upper bound and regulatory focus orientation, F = 2.114, $p > 0.10$. Together, the width of the range was largely affected, F = 10.483, $p < 0.01$.

The above results signified that the effect of different regulatory focus significantly affected individuals' judgment in this task, supporting H1a(xiv). Prevention focused individuals consider the low past gross profit ratio as less relevant and made higher estimation in setting the lower boundary of the range of possible values of gross profit ratio for the year, which result supports H1b(ii).

Procedural processing style and regulatory focus

It is expected that more effortful style of processing information would reduce the difference between responses by participants with different regulatory focus. As shown in Table 10.6 – 10.8, the difference in lower bound responses indicated by participants with different regulatory foci was smaller in the 'procedural condition', 1.28% than in the 'intuitive' condition, 1.91%. This difference in the width of range was also smaller in 'procedural' condition, 1.28%, than in the 'intuitive' condition, 3.27%.

Table 10.9 Procedural vs. Intuitive processing style under regulatory focus

	Procedural		**Intuitive**	
	F – value	Sig.	F – value	Sig.
Lower bound	1.180	0.283	5.773	**0.018****
Upper bound	0.015	0.904	3.062	**0.084***
Width of range	1.206	0.278	13.767	**0.001***

*** significant at 0.01 level ** significant at 0.05 level * significant at 0.10 level

Supporting the hypothesis (H15), the effect of difference in regulatory focus was reduced in 'procedural' condition, compared with the 'intuitive' condition (see Table 10.9 above). Being forced to pay more attention to the stimulus, both promotion focused and prevention focused participants consider the low profit ratio as being more relevant when information was processed with more effort, to compute the past ratios. Promotion focused people perceived the low past ratio to have lower relevance in the task than prevention focused people in both conditions of different information processing style.

Procedural vs. intuitive judgment under regulatory focus

Different information processing style was found to affect the perceived relevance of the stimulus (a low gross profit ratio) in this experiment, which effect was significant on the indication of lower boundary in the task. Responses from each treatment groups are plotted in Figure 10.6 (lower bound), Figure 10.7 (upper bound) and Figure 10.8 (width of range indicated).

Supporting the implication of spotlight attention metaphor in the temporal aspect, procedural processing forced individuals to pay more attention to information in the past. As a result, the stimulus was considered as more relevant in setting the lower boundary

under procedural processing condition. Among promotion focused participants, lower bound responses were lower in 'procedural' condition (M = 16.07%) than in 'intuitive' condition (M = 17.91%), t (87) = -2.098, $p < 0.05$. Prevention focused participants also indicated lower value for the lower boundary in the 'procedural' condition (M = 17.28% and 19.81%), t (47) = -2.759, $p < 0.01$.

Figure 10.6 Experiment 4b – lower bound (%)

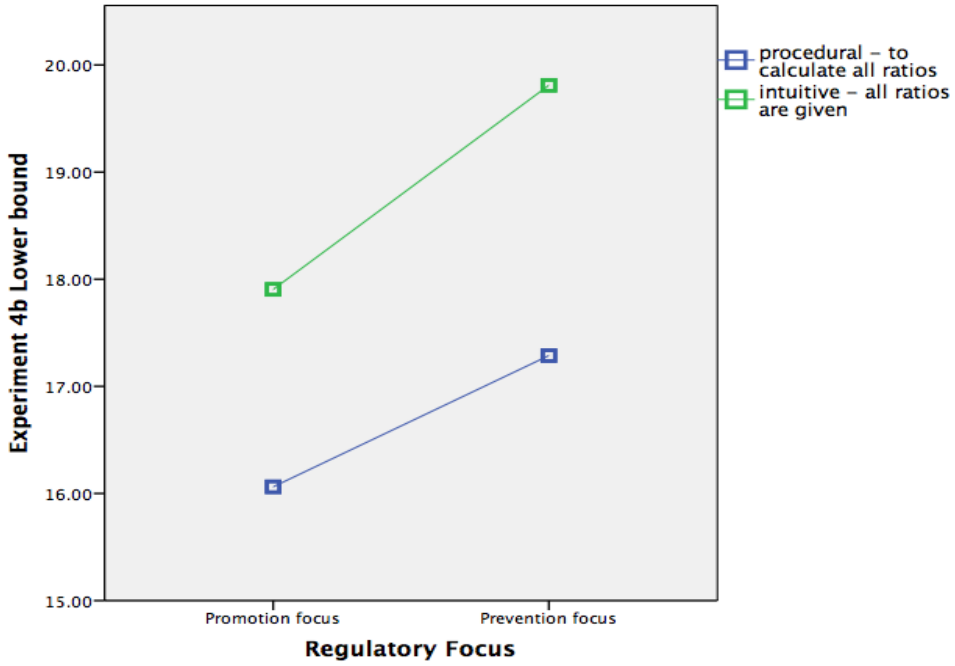
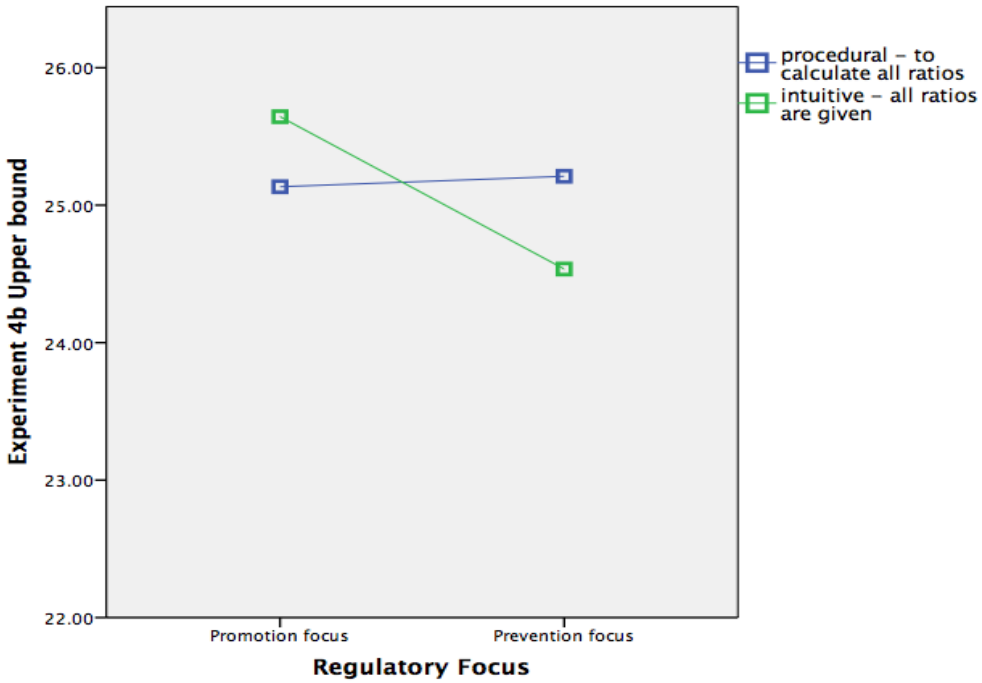


Figure 10.7 Experiment 4b – upper bound (%)



Upper bound responses were not different between 'procedural' and 'intuitive' settings applied among promotion focused individuals (M = 25.13% and 25.64%, t (72.3) = -0.998, p > 0.10) or among prevention focused individuals (M = 25.21% and 24.54%, t (42) = 0.893, p > 0.10).

Among promotion focused participants, the indicated range of the possible ratios was wider in 'procedural' condition (M = 9.21%) than the range indicated in 'intuitive' condition (M = 7.77%), which different was insignificant, t (85) = 1.628, p > 0.10. The width of range was also higher among prevention focused individuals in the 'procedural' condition (M = 7.93%) than in the 'intuitive' condition (M = 4.5%), t (45) = 2.956, p < 0.01.

Figure 10.8 Experiment 4b – width of range (%)

Results signified the existence of an interactive effect between regulatory focus and difference in information processing style. Variations in lower bound responses were significant between participants with different regulatory focus and in different manipulative conditions applied, F = 5.293, p < 0.01. Upper bound responses were similar among participants, F = 1.217, p > 0.10. Together, the determined width of range was significantly different among participants, F = 7.592, p < 0.01.

Non-parametric statistically also supported the existence of an interactive effect. Result from Kruskal-Wallis test also suggested significant variations in lower bound responses

among participants with different regulatory focus and in different treatment conditions (sig. = 0.002). Resulting from this, the variations in width of range determined was also significant, sig. = 0.001. Upper bound responses were similar among all participants in this experiment (sig. = 0.114).

10.5.3 Option to modify judgment

As in Experiment 4a, participants received a message about the average response from other participants, which was different from their judgment.

Table 10.10 Experiment 4b – Option to modify judgment

	Procedural		**Intuitive**		Total
	Promotion focus	Prevention focus	Promotion focus	Prevention focus	
Option to modify judgment					
Not to modify	23	19	56	29	127
To modify	5	1	4	1	11
Missing values	9	9	0	1	19
Total	37	29	60	31	157

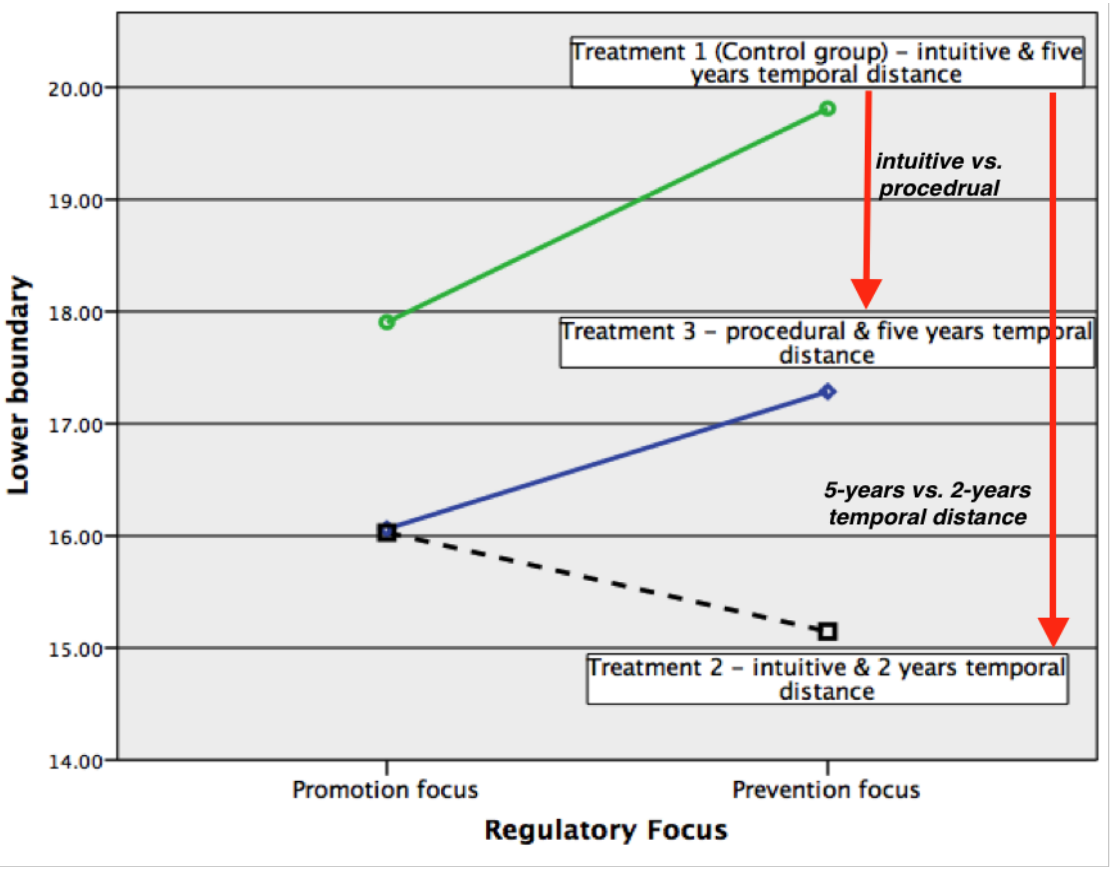
A total of 138 subjects considered the option to amend their initial judgments after exposed with this ‘average response’. Eleven of them chose to amend answers including nine subjects with promotion focus and two being prevention focused. No significant effect of regulatory focus orientations or differences in information processing style (procedural vs. intuitive) on the decision whether to modify judgment made was observed.

10.6 Summary of findings and discussion

Adopting the case used in Kinney and Uecker (1982), this experiment examined the effect of regulatory focus on individuals' perception of relevance of past accounting information in an investigation boundary setting task. A summary of results of hypotheses testing in this experiment (Experiment 4) is presented in Table 10.11 at the end of this section / chapter.

The main findings are in respect of the lower boundary responses. The pattern of responses from the three treatment groups are exhibited in Figure 10.9 below.

Figure 10.9 Summary of results in this experiment (lower boundary) (%)



Compared with those with promotion focus, people with prevention focus are more sensitive to the presence and absence of loss and negative outcome (supporting H1b). In prior research on heuristics and bias in decision-making, prevention focus has been suggested to be dominant in loss aversion (Halamish et al, 2008) and sunk cost error (Molden and Hui, 2010) in judgment. Individuals with prevention focus were also reported to adopt risky approach in loss condition (Scholer et al., 2010). They tend to be more willing to take risks than other with promotion focus to revert loss incurred. Hence,

empirical findings suggested overreaction to 'negative' / loss-related outcome and information among prevention focused people in making judgment. Given the gross profit ratio relatively steady but with one year being significantly lower, it is reasonable to expect a similar asymmetric effect of regulatory focus on accounting information considered in audit judgment. That is, prevention focused participants would be more concerned with 'negative' / loss-related information, e.g., a figure appeared to be much low in the accounting information being processed. Supporting evidence was found in this experiment. Compared with participants with promotion focus, participants with prevention focus seemed to overreact to manipulations applied on the loss-related stimulus – a low gross profit ratio. They weigh more on the 'negative' / loss-related information when it is proximal in the past, and they discount more on the relevance of the loss-related information over increased temporal distance.

People discounted the relevance of information over its temporal distance. Under the effect of prevention focus, the temporal distance of the stimulus significantly affects its perceived relevance in judgment. In the context of judgment under uncertainty, Halamish, Liberman, Higgins and Idson (2008) reported finding that the asymmetric discounting on positive and negative prospects over uncertainty, i.e., to discount more on negative prospects (the perceived intensity of losses) than on positive prospects (the perceived intensity of gains), was more pronounced among prevention focused people, rather than promotion focused people. A similar distinct regulatory focus pattern of discounting over temporal distance was expected. Consistent with the prediction, under the effect of prevention focus, people discount more on the relevance of accounting information more temporally distant away in the past and discount less if past accounting information is closer in time. The impact of temporal distance was less obvious under promotion focus.

Information processing style was also found to influence the perceived relevance of past accounting information. Compared with intuitive style to reflect directly on available information, the more effortful procedural processing style reduces the impact of difference in regulatory focus. Promotion focused participants and prevention focused participants made similar judgment when required to work out the ratios before indicating the possible range of the ratio for the 'current year' in the experiment.

This finding is of high value in audit JDM research on cognitive limitation. Large amount of prior research replicate psychology studies on heuristics and biases in audit setting. Results from prior research were inconsistent and some has argued that auditor expertise

and accountability potentially mitigates adverse effect of cognitive limitations in audit judgment (see discussion in Chapter Three, Section 3.2.1 on page 42 to 45). This experiment provides alternative explanation on the inconsistency in the literature. Audit judgment is different from most common judgments. While most psychology studies experiment on heuristics and bias in decision-making to measure judgment made intuitively, audit judgment are most often from procedural processing of information. Auditors rarely make direct reflection on information obtained. They make interpretations, running sampling tests, and perform analytical procedures to process the information before making judgment.

In conclusion, this experiment has made several contributions to the existing literature of audit JDM. Firstly, it first examined the effect of regulatory focus in an audit relevant task. There is yet no research applying Regulatory Focus Theory in audit context. The results of this experiment provide evident support for the significance of distinct effect of promotion focus versus prevention focus in audit judgment. Secondly, this experiment investigated into the issue of temporal distance in past dimension, which has been overlooked in the decision-making literature. Existing research tend to concentrate on the devaluation of future outcomes. Thirdly, it established different cognitive effect of procedural versus intuitive information processing styles in judgment and decision-making, which might account for the inconsistency in results from prior audit JDM research. Thus, task employed in regulatory focus studies need to be modified to fit the context of audit judgment research. This experiment also contributed to the scarce amount of studies on regulatory focus and temporal distance and provides the first examination of the effect of regulatory focus and past dimension of temporal distance in judgment.

This experiment reported insightful findings indicating interesting and complex interactions between regulatory focus and temporal distance. Since this experiment only looked at the situation of a particularly under-performed financial year in the past, future research can experiment on the condition of a particularly out-performed financial year, to examine whether regulatory focus would have a different influence on gain-related information. In addition, future research can also use information about the future, e.g., predictions / estimations of accounting values of future year(s)), instead of historical information, to see whether the distinct effect of promotion focus and prevention focus on information processing and judgment would also apply in future dimension of the temporal aspect.

Table 10.11 Summary of results of hypotheses testing in Experiment 4

H1: Promotion focused people are more sensitive to and tend to be primarily concerned with 'positive' accounting information; whereas, prevention focused people are more sensitive to and tend to be primarily concerned with 'negative' accounting information.			
H1a: Therefore, individuals with different regulatory foci will make different judgments as a result of differences in their sensitivities to 'positive' versus 'negative' accounting information processed.	Exp 4a Exp 4b	H1a(xiii) H1a(xiv)	**Accepted** **Accepted**
H1b: Compared with promotion focused individuals, those with a prevention focus are more sensitive to 'negative' accounting information.	Exp 4a Exp 4b	H1b(i) H1b(ii)	**Accepted** **Accepted**
H13: The effect of temporal distance on individuals' perception of relevance of the accounting information is associated with differences in their regulatory focus orientations.	Exp 4a	H13	**Accepted**
H14: The effect of discounting over temporal distance on the relevance of the accounting information is more dominant with prevention focus.	Exp 4a	H14	**Accepted**
H15: Procedural information processing reduces difference in judgments made by individuals with different regulatory foci.	Exp 4b	H15	**Accepted**

Chapter 11: Conclusion and discussions

11.1 Introduction

This thesis aims to contribute to the existing literature of audit JDM studies by casting new light on cognition in audit judgment. In part this thesis was motivated by the argument, found in Bazerman, Loewenstein and Moore (2002), that 'unconscious bias' in audit judgment lay behind certain high profile audit scandals. Inspired by the rich and fruitful findings on the implications of the two concomitant psychology theories of self-regulation, Regulatory Focus Theory and Regulatory Fit, found in decision-making science, this thesis seeks to explore relevance of the two theories for the field of audit JDM research and provide preliminary empirical results concerning their plausible implications.

Chapter One offers a general review of prior research on the effect of regulatory focus and regulatory fit in decision-making, focusing on the lines of research most pertinent to the audit review context. Chapter Two presented a general review of the main research trends in the field of audit judgment and decision-making (JDM) research and in particular, in studies on heuristics and bias in audit judgment, and accountability and the audit review process. First, existing research on cognitive limitations in auditing judgment (see Section 3.2.1) most often replicates, in the context of audit, psychology studies on heuristics and bias: It typically reports evidence for auditors' use of heuristics in making judgment whereas expertise and task familiarity have been found to make judgment less susceptible (Smith and Kida, 1991). Second, despite the complexity of accountability as a construct, with its multiple subtypes and various characteristics, prior research primarily treats it as a simple environmental factor – accountability pressure in audit, and seeks to tests its effectiveness as a mitigator of heuristics and bias in audit judgment (see Section 3.2.2). However, accountability is not a unitary phenomenon (Lerner and Tetlock, 1999; 2003). Different types of accountability have different motivational effects on judgment. (see discussion on psychology of accountability in Section 2.5.2). The lack of proper understanding of accountability has limited its implication in audit judgment research. Third, researchers have recognized the multi-person aspect of audit judgment and in particular of the audit review process, which according to Rich et al. (1997) can be best understood as a set of persuasion interactions between auditors who prepare the working papers (preparers) and auditors who perform review on work performed (reviewers). Chapter Three has reported findings from pre-experimental qualitative work conducted in

this thesis, for a confirmatory purpose to check the validity of key prior assumptions made in prior experimental studies on audit review process, and to bridge the gap in the literature that lacks descriptive data on audit review activities in modern audit practice.

Chapter Four then proposed plausible implications and suggested distinct effects of promotion focus and prevention focus that might be anticipated in the context of information processing in audit judgment. These included differential sensitivity to different accounting information, regulatory focus effects on the cognition of temporal aspects of accounting information – its distance to present, and effects of regulatory focus on attention in the processing of information. It also draws a link between the effect of persuasion fit established in persuasion studies and perceived persuasiveness of accounting information in audit review and judgment. Research questions to be addressed in this thesis and the hypotheses developed and tested in experiments are outlined and justified (as summarized in Table 4.1, presented at the end of Chapter Four). Chapter Five has set out the research methodology and explained the roles of experiments and pre-experimental qualitative works in this thesis.

As the first study to apply regulatory focus and fit theories in audit JDM research, an attempt is made in this thesis to simulate an audit scenario using abstracted settings to reduce the level of complexity in the experiments. Case materials had been designed from scratch for the experiments that examines the effect of regulatory fit on persuasiveness of accounting information in this thesis. The research instrument used in Experiment 1, 2 and 3 has been introduced in Chapter Six. The results and finding of these three experiments have been reported and discussed in Chapter Seven to Nine. Experiment 4 used research instruments developed based on materials used in Kinney and Uecker (1982) to test the effect of regulatory focus on cognition in audit judgment. The results and findings of Experiment 4 have been reported in Chapter Ten.

This chapter starts with a summary and interpretation of the main findings of the two studies in this thesis and, in Section 11.2, discusses several novel findings. It then outlines the contribution of this thesis to existing literature in sub-chapter 11.3. In sub-chapter 11.4, policy implications and recommendations are drawn from the key findings of the experiments reported on here. Finally in sub-chapter 11.5, following a discussion of the limitation of this thesis, some suggestions for future research are offered.

11.2 Findings of this study

This thesis has executed four experiments. Experiment 1, 2 and 3 investigated into the effect of regulatory fit on perceived persuasiveness of accounting information with the experience of fit induced using the message matching method in Experiment 1; via experience of applying sustaining strategic means within the task in Experiment 2; and, via sustaining experience from unrelated task in Experiment 3. Experiment 4 examines, in an audit judgment setting, the distinct effect of promotion focus versus prevention focus on cognition of temporal aspects of accounting information and different information processing styles. An overview of the findings and a general discussion on their practical implications is provided below.

11.2.1 Findings on the effect of regulatory focus in audit judgment

11.2.1.1 Regulatory focus and 'positive' / 'negative' information in audit judgment

The experiments in this thesis were built upon a reasonable assumption made in relation to the effect of difference in regulatory foci on sensitivity to 'positive' and 'negative' accounting information. Prior research on Regulatory Focus Theory suggested that people pay selective attention to information processed. People with promotion focus are especially interested in, and sensitive to, information that is particularly relevant for advancement and gain-related information that involves the presence and absence of positive outcomes; whereas those with prevention focus are especially interested in, and sensitive to, information that is particularly relevant for security and loss-related information that involves the presence or absence of negative outcomes (Molden, Lee and Higgins, 2008). The conceptualization of positive versus negative outcomes correlates with common sense of 'good news' versus 'bad news' in life. In the study by Higgins and Tykocinski (1992), promotion focused people recalled more information about good news such as the event that someone find $20 on the street; whereas prevention focused people recalled more information about bad news such as the event that someone are stuck in traffic jam. It is therefore proposed in this thesis that this distinction between promotion focus and prevention focus might also be applicable to accounting information, where typically "good news" might equate to the good financial performance of a business and positive profit figures, and "bad news" to information about the auditee's poor financial performance and negative profit figures.

This assumption is incorporated into the design of Experiment 1, 2 and 3. Results obtained signified the validity of this assumption. Promotion focused participants were more concerned with the positive accounting information, concerning amounts attained and collectability of amounts in making judgment; whereas prevention focused participants were more concerned with negative accounting information, concerning amount not yet attained and incollectability of amounts. As a result, promotion focused participants made higher estimation in the judgment of amounts expected to be collected than prevention focused participants. The pattern of responses supported the assumption[38]. It is also expected that this effect of difference in regulatory foci on sensitivity to 'positive' and 'negative' accounting information potentially leads to different judgments made between promotion focused and prevention focused individuals. This hypothesized effect is tested in all four experiments in this thesis. The resulting difference in responses was most significant in the integral fit setting (that regulatory fit was induced by creating experience of applying strategic means that sustained individuals' regulatory foci).

Empirical findings have consistently suggested the predominance of prevention focus in biased judgment and irrational reactions associated with loss-related outcomes. For instance, people with prevention focus overreact to potential losses that they tend to have stronger loss aversion (Foster et al., 1998) and misguided commitment to sunk cost (Molden and Hui, 2010). Furthermore, in situations of loss, individuals with prevention focus are more likely to respond aggressively; tending to take excessive risks in hope of reverting the loss (Scholer et al., 2010). This predominance of prevention focus is supported by results of an experiment in this thesis (Experiment 4) that uses a loss-related stimulus. Compared with promotion focused participants, prevention focused participants were more sensitive to manipulations applied on this loss-related stimulus (see the following sections, Section 11.2.1.2 and 11.2.1.3, for more discussion of this finding).

It can be implied from the experimental results that auditors treat information about good financial performance of the client as good news and positive outcome; and information about poor financial performance of the client as bad news and negative outcome.

The legitimacy of audit comes from the professional position of auditors and the credibility of the quality assurance service (Power, 1996). This findings lead to a question of whether auditors psychologically, and albeit unconsciously, put themselves in the shoes as their

[38] A summary of descriptive results of Experiment 1, 2 and 3 is attached in Appendix 4.

client. If so, what makes auditors different from accountants? Francis (1994) regarded the role of audit as the 'second-order or high-order interpretation' of the economic text narrated by the financial statements provided by accountants' first-order interpretation. Accountants make the first-order interpretation, the interpreting the meaning of GAAP and to make accounting sense of the company's economic activity. Based on the interpreted information, auditors then make their own interpretation and understanding. The subjectivity in the interpretation by auditors exists for good reason (Francis, 1994) and adds value to the audit work via their expertise (Power, 1996). If auditors at some level tend to take the internal view of the client, then the viability and validity of their independence and their capacity to make "second-order" interpretations must come further into question.

11.2.1.2 Regulatory focus and temporal distance of past accounting information

Time is an important component influencing judgment. Prior literature on intertemporal choice suggests that people discount the utility of future outcomes over temporal distance. It can be implied that information about events that are more temporally distant away will be considered as less relevant. Pennington and Roses (2003) has established a link between regulatory focus and temporal distance (see Chapter One, Section 1.3.2.3, on page 11) that the greater temporal distance increases the relative impact of promotion over prevention focus. However, existing research mainly looked at temporal distance of future events and none of them were in fields related to accounting and auditing. This thesis has investigated into the effect of regulatory focus on individuals' consideration of temporal distance of past accounting information.

Prevention focused participants considered past accounting information, a loss-related stimulus, as highly relevant when it was of two-year temporal distance in the past, i.e., 2 years ago. When the temporal distance of this loss-related item was increased from '2 years ago' to '5 years ago', its relevance in this judgment was discounted more by prevention focused subjects than promotion focused subjects. Overreaction to the loss-related stimulus under the effect of prevention focus was observed in this experiment. Compared with promotion focused participants, individuals with prevention focus weight more on the loss-related item when it is proximal in the past, and they discount more on its relevance over increased temporal distance.

11.2.1.3 Regulatory focus and procedural information processing

Procedural information processing reduces the difference in judgment between promotion focused and prevention focused participants. However, in an experiment in this thesis that employs an analytical review like task, judgment was significantly affected when individuals were forced, by procedure, to pay more attention to the loss-related stimulus. Both promotion and prevention focused participants were found to bring down the lower boundary of the zone in which they judged a profit ratio did not call for further investigation, and thus exempt a wider range of values from investigation. Prior audit research, on the other hand, rarely directly addresses how information is obtained and processed. In practice, auditors use adjustable mixes of intuitive and procedural means in gathering and processing information, and in judgment formation. Majority of psychology studies experiment on heuristics and bias in decision-making to measure judgment made intuitively. Therefore, this is important to audit JDM research on cognitive limitations, as it proves that findings from these studies can not be applied to audit judgments made using procedural means.

11.2.2 Findings on the effect of regulatory fit in audit judgment

11.2.2.1 The effect of persuasion fit in audit judgment

As illustrated by the Rich et al. (1997)'s persuasion framework, audit review process might be best understood as a set of persuasion interactions between preparers of the audit work (generally subordinates and less-experienced auditors) and reviewers (generally superiors and more experienced auditors). Review is embedded in the normal audit routines. Auditors have incentives to persuade their superiors about the quality of their work via possible stylization attempts in the working paper produced. Existing studies on persuasion fit effect in judgment are mostly in the field of consumer choices and health studies. The findings from such research cannot be applied directly to audit judgment. To extend the applicability of persuasion fit to audit and to "prove" its relevance in audit judgment, this thesis undertook three experiments to test the effect of regulatory fit on the persuasiveness of accounting information using a scenario designed to be analogous to audit.

The construction of the experiments has been carefully started from scratch – from the design of the main structure, the design of every piece of case material, to the wordings of required tasks and layouts. The applications of various methods of regulatory fit offered

examples to future research that they can be implemented conveniently in experiment and in practice.

All participants received same case information about a student drama club and were required to make estimation judgments and likelihood assessments concerning the amount of revenues expected to be generated. Robust results have been obtained supporting the existence of relationship between regulatory fit and the persuasiveness of accounting information, as signified by variations in responses among different treatment groups. Across three experiments applying different methods of regulatory fit induction, it has demonstrated in this thesis how each of these three methods can be applied in an audit judgment like setting and demonstrated the effect of regulatory fit / misfit induced from different sources in such a setting.

In the message matching setting, messages were applied with 'hits' framing (sustaining promotion focus concerns) or 'misses' framing (sustaining prevention focus concerns) to describe the same positions of even chance, e.g., half have paid vs. half have not paid yet. The messages did not add any new information in the case. Promotion focused participants received matching messages ('hits' framing) made higher estimations whereas prevention focused participants received matching messages ('misses' framing) made lower estimations. Regulatory fit from matching messages was shown to affect individuals' estimation judgment. (A summary of results from the three regulatory fit settings can be found in Appendix 4.) In the other two settings, integral fit and incidental fit, participants were presented with exactly the same information set. Results from the incidental setting indicated an interactive effect of regulatory focus and regulatory fit on judgment. Variations in judgment were associated with both difference in regulatory focus primed and difference in the regulatory fit versus misfit induced. Results from integral fit setting might have been influenced by additional information given and materials used in the manipulations – predictions by the committee on subscriptions to be collected and amounts listed in a conversion table (see discussion of results in Chapter Eight, Section 8.4.2 and 8.5.2). Results from integral fit setting suggest possibility that the information / material had been applied as reference point in participants' judgment. The unduly use of unchecked predictions and irrelevant information in judgment was associated with regulatory fit rather than misfit.

One implication of the above findings is that regulatory fit can impact audit judgment in different ways. It can be implied from the findings in the message matching setting that the

presentation of accounting information, in relation to regulatory focus, can affect audit judgment. Merely changing the form of a message, and not its information content, in ways that are sensitive to regulatory focus, can induce changes in judgments made in audit-like situations. Results from the incidental fit setting of the experiment imply that the manner of performance in a prior judgment, and the fit or misfit induced, can affect subsequent judgments. Hence, audit procedures conducted in eager manner, e.g., to include more items in testing to ensure 'hit' on the correct cause of fluctuation detected, activate regulatory fit under promotion focus and regulatory misfit under prevention focus; whereas procedures conducted in vigilant manner, e.g., to carefully consider items tested to avoid 'miss' the correct cause of fluctuation detected, activate regulatory fit under prevention focus and regulatory misfit under promotion focus, and the effects of such fit can be carried over to affect performance in subsequent judgment tasks. In addition, as a result of fit, the feeling of 'rightness' is generated, which may inform and affect individuals' evaluation at that moment (Cesario and Higgins, 2008). Hence, individuals may feel 'right' about irrelevant / unreliable information processed in sustaining manner with their regulatory focus orientation. This effect of regulatory fit potentially leads to bias in judgment, e.g., dilution effect.

11.2.2.2 Regulatory misfit

Prior research has rarely investigated the effect of regulatory misfit in judgment. It was primarily treated as a 'switched-off' condition of regulatory fit. Koenig et al. (2009) have provided experimental justification for the suggestion that regulatory misfit that it leads to more careful and thorough consideration of information received and high elaboration in judgment formation and decision-making. It can be expected to lessen the motivational effect of regulatory focus and avoid reliance on feelings of fit as supplement to information. Therefore, no distinct effect of promotion versus prevention focus in judgments is expected when regulatory misfit is induced.

Regulatory misfit was found to have mixed effects across the experiments. A summary of the mixed effect of regulatory misfit from the experiments is exhibited in Table 11.1 on next page.

Part of the results supports the hypothesis that individuals make careful and thorough consideration on information received under the effect of regulatory misfit. Thus, the

impact of differences in regulatory focus primed was lessened under regulatory misfit so that the judgments of promotion focused and prevention focused individuals became less different. However, in some conditions (e.g., in the judgment to assess the likelihood of receiving target amount from donations), a rebound effect was found that responses indicated opposite effect of regulatory focus.

Table 11.1 Summary of misfit and rebound effect in Experiment 1, 2 and 3

<table>
<tr><th rowspan="2"></th><th colspan="2">Subscriptions</th><th colspan="2">Donations</th></tr>
<tr><th>Estimation of amount to be collected</th><th>Likelihood assessment of collecting target amount</th><th>Estimation of amount to be received</th><th>Likelihood assessment of collecting target amount</th></tr>
<tr><td>Message matching manipulations applied in subscription section</td><td colspan="2">More careful and thorough consideration on information received (indifferent judgment by promotion and prevention focused ones)
Consistent with Koenig et al. (2009)</td><td>Rebound effect associated with promotion focus under regulatory misfit (and regulatory fit)</td><td>Rebound effect associated with prevention focus under regulatory misfit</td></tr>
<tr><td>Integral fit manipulations applied within each section of the experiment</td><td colspan="4">Promotion focused and prevention focused individuals made significantly different judgments in the integral fit experiment
Inconsistent with Koenig et al. (2009)</td></tr>
<tr><td>Incidental fit manipulations applied at the start</td><td colspan="2">More careful and thorough consideration on information received (indifferent judgment by promotion and prevention focused ones)
Consistent with Koenig et al. (2009)</td><td></td><td>Rebound effect associated with prevention focus under misfit</td></tr>
</table>

Note: It is suspected that additional information given in manipulation settings applied in the integral fit experiment might have unduly affected the responses (see Section 8.4.2 and 8.5.2 for more detailed discussion of the results).

The effect of misfit might be related to how regulatory misfit experience was induced. Koenig et al. (2009) found the activation of more careful and thorough thinking effect of misfit using incidental fit induction method. Congruent results were obtained from the experiment using incidental fit setting (Experiment 3). When regulatory misfit was induced via mismatching message framings (Experiment 1), the same effect was observed, whereas the carry-over effect of misfit was found to result in a rebound regulatory effect on judgment made (discussed in next section). Hence, results from the experiment suggest that regulatory misfit originated from different source has different effect on judgment.

The inconsistency in results obtain from the misfit conditions also require fuller explanations. Hence, future research might look into this issue for more insights.

11.2.2.3 The carry-over effect of regulatory fit / misfit – duration of fit / misfit induced and possible rebound effect on judgments

Does regulatory fit/misfit affect subsequent judgment in a consistent manner? How durational is the effect of regulatory fit and misfit in judgment? Existing literature has not yet covered these questions.

Temporarily manipulated / primed regulatory focus only lasts for a period of time. After that, individuals can be expected to, either restore back to their nature chronic regulatory focus dispositions, or rebound in judgment and task performances.

It can be inferred from the finding that regulatory fit and misfit might have inconsistent impact on subsequent judgments (see Table 11.1 on page 275). Firstly, the rebound effect observed in two experiments (Experiment 1 – message matching and Experiment 3 – incidental fit) might hint at the duration of regulatory fit and misfit – the 'carry-over' effect that prior experience of fit / misfit continues to affect sequential performance / judgment. Promotion focused participants in the message matching condition rebounded in the subsequent judgments as a result of the 'carry-over' effect of regulatory fit / misfit. In the incidental fit condition, the fit and misfit induced at the start of the experiment had consistent impact on several judgments in sequence before rebound. It could be that the effect of regulatory fit and misfit induced using incidental source last longer, as compared with the message matching induction method.

11.3 Contributions

The main purpose of this thesis is to explore and promote applicability of Regulatory Focus Theory and Regulatory Fit in audit JDM research and to provide first empirical evidence on the relationship between individuals' regulatory focus and cognitions in audit judgment and to test for the implications of the effect of regulatory fit on persuasion (persuasion fit) in audit judgment.

Up to date, no study has ever applied these two concomitant theories into accounting and auditing research. This thesis first conducted experiments to test a few plausible implications of regulatory focus in audit judgment and provided evident support for the significance of regulatory fit / misfit and distinct effect of promotion focus versus prevention focus in audit judgment. It has made contributions to the existing knowledge on cognitive issues in audit judgment and research methodology.

First, this thesis presented evidence of the existence of a regulatory fit effect that potentially influences audit judgment. Given same case information, individuals reach different judgments when their regulatory focus were either sustained or disrupted. Across three different settings of regulatory fit inductions applied in the experiments, it is evident that there are various ways that regulatory fit / misfit can be manipulated. Due to the flexibility of the source of regulatory fit and misfit, the persuasiveness effect of regulatory fit may have wide implications in audit judgment research. For instance, it can be inferred from the experimental results that the way audit evidence and justification is organized, the structure of the working paper, potentially create a source of regulatory fit / misfit that may influence the reviewers' judgment. In addition, auditors' experience from prior audit procedures performed and judgments made may also become source of fit / misfit, which can impact on the sequential judgment.

Second, this thesis has examined the effect of regulatory focus on the cognition of temporal distance of accounting information in the past dimension. Auditors use historical accounting information. No study has yet related the consideration of predictive significant of past accounting information with temporal discounting. In addition, this is also the first study that applies regulatory focus to study temporal discounting in information processing. Experimental results in this thesis show a strong prevention focus effect on temporal discounting on information about past events.

Third, this thesis reported finding on different cognitive effects of procedural versus intuitive information processing styles in judgment and decision-making. Psychology researches primarily use intuitive judgment to study heuristics and bias in judgment. Biased judgment can often be corrected after reflection or more effortful consideration. Hence, findings established in psychology tasks cannot be applied directly to audit judgments with significant procedural elements in their formation.

In addition, this thesis has also made several contributions to the literature of regulatory focus studies. First, this thesis presents novel research that expands the classic effect of regulatory focus on sensitivity to outcomes of goal pursuits – i.e., the presence / absence of gains versus losses, into general sense of 'positive' information (good news) versus 'negative' information (bad news). Prior research has applied the regulatory focus effect on sensitivity to different outcomes to study difference in judgments. Empirical findings consistently indicate strong association between 'negative' information, e.g., loss incurred, probability of making losses, and unpleasant experience, with prevention focus rather than promotion focus. This thesis proposed that regulatory focus influence cognitions of 'positive' versus 'negative' information and reported supporting evidence for this hypothesis in relation to accounting information. Individuals' sensitivity to 'positive' accounting information that indicates good financial performance, e.g., attainment of profit and generation of revenue, versus 'negative' accounting information that indicates poor financial performance, e.g., loss making and bad debts, is associated with their regulatory focus orientations. Second, this thesis employs a task to indicate a possible range – boundary judgment, which has not been explicitly studied in existing literature. Third, this thesis has contributed to the literature of regulatory fit with evidence for the carry-over effect of regulatory fit / misfit and possible rebound in judgment. Forth, this experiment also contributes to the scarce amount of research on regulatory focus and temporal distance. Existing research in the decision-making literature tends to concentrate on the devaluation of future outcomes, whereas judgments in relation to temporal distance in past dimension has been overlooked. This thesis provides the first examination of the effect of regulatory focus on past dimension of temporal distance in judgment.

Moreover, this thesis has contributed to the research design of applying regulatory focus and regulatory fit in audit judgment research. It has demonstrated the feasibility of fitting regulatory focus features and regulatory fit inductions into audit research contexts and tasks. Tasks employed in regulatory focus studies can not be applied directly to audit JDM research due to the complexity of audit scenarios. This thesis has made the experimental

tasks relevant to audit. In addition, the effect of regulatory focus dispositions fundamentally impacts on many cognitive aspects in decision-making. It is therefore quite a challenge to modify regulatory focus task to fit with audit while effectively prompting regulatory focus and regulatory fit. Elements of audit settings employed in constructing the experiment must be carefully considered to reduce noise in experimental control. One merit of this thesis therefore lies in the novelty of the experiments that have been designed to use simplified settings calculated to avoid some of the complexity in of real audit scenarios whilst retaining essential features.

11.4 Policy recommendations

The findings of this thesis on the effect of regulatory focus and regulatory fit on aspects of audit judgments have been summarized, interpreted, and discussed in the previous section (Section 11.2). These novel findings of this thesis bring new insights and have potential policy implications for audit firms, accounting and audit standards boards and professional bodies.

Findings from the experiments on the cognitive effect of regulatory focus suggest fundamental regulatory focus effects on cognitions in audit judgment that lead to different judgments. For instance, prevention focused people make significantly different judgment in relation to the predictive significance of past accounting information from promotion focused people. People are unaware of the influence of regulatory focus on their judgment, and regulatory focus orientation can be stable as a chronic personal attribute, or situationally stimulated. Hence, firms may want to consider candidates' regulatory focus types in recruitment, i.e., whether promotion focused or prevention focused individuals are more suitable for the post. Training programs can be more effective if designed accordingly.

Findings from the experiments on the effect of regulatory fit on persuasiveness of accounting information suggest various ways that audit judgment may be affected by regulatory fit. First, the way information is described and presented becomes a source of regulatory fit that influences individuals' judgment. The persuasion framework of audit review by Rich et al. (1997) suggests that preparers of the audit working paper have incentives to 'stylize' the working paper to persuade the reviewer about the quality of the work performed (discussed previously in Chapter Two, Section 2.6.4). It has been demonstrated in an analogy for audit scenario that, without alteration on the substance of the information, individuals' judgment may be affected by simple manipulation using sustaining framing with promotion focus or prevention focus. Describing the same position of an even chance event, the messages emphasize on either the proportion of the total amount being attained or the proportion not yet attained. This finding supports the assumption of the persuasion framework that reviewer's judgment may be affected by stylization attempts by preparers. The persuasion attempt is not necessarily an argument or a justification that actively advocates the conclusion reached. It can rather be less noticeable and impacts on individuals' cognitions behind the judgment. Auditors who perform review on the working paper prepared by subordinates ought to be made aware of the fact that their judgment may be influenced by purposeful stylization. Audit firms may

provide related trainings on performing reviews with some demonstrating examples of potential stylization attempts. Standard review templates can also be produced to minimize opportunities for purposeful stylization.

Second, the theory of regulatory fit also suggests that the process of reaching a conclusion may be an integral source of regulatory fit, which makes individuals feel more positive about their judgment. As people may confuse the source of this feeling of rightness – the judgment (end) or the process (means), regulatory fit can potentially lead to biased judgment (Aaker and Lee, 2006). When individuals feel right about heuristics applied in making judgment, they may be less likely to become aware of bias in their judgment. Auditors ought to be alert to this potential adverse effect of regulatory fit to avoid incorrect reference to subjective feeling in making judgment.

Third, eager means or vigilant means applied in performance in prior task is another source of regulatory fit that influences judgment in the sequential task. Feeling of rightness from regulatory fit experienced in the processing of making a previous judgment can continue to impact on the next judgment. Thus, the order of audit tasks may also be a factor that affects audit judgment. Additionally, feeling of rightness potentially informs and affects any type of evaluations at the moment of experiencing fit, which may lead to too much comfort in judgment. Judgment may be unduly affected by information processed in the manner that sustains individuals' regulatory focus orientation, as they feel right about both relevant and irrelevant information to the current judgment.

Fourth, the carry-over effect of regulatory fit / misfit sometimes leads to possible rebound in judgment (e.g., making a sudden wild guess after several cautious estimations). The impact of misfit seems unpredictable. Constant experience of regulatory misfit in sequential tasks may bias the judgment or cause exhaustion of cognitive resources that sometimes lead to rebound in judgment. Hence, firms and standards boards ought to be aware of the potential adverse effect of regulatory fit and misfit on audit judgment and consider making policy to control for such problem, e.g., segregation of audit tasks and control for the order of audit tasks.

Furthermore, people with promotion focus are more alerted to presence of opportunities; whereas people with prevention focus are more alerted to danger. It may be ideal to assign auditors with different chronic regulatory focus to different audit judgment / tasks, or to situationally activate promotion or prevention focus for particular audit judgment / tasks.

11.5 Limitations and future research

Limitations of this thesis are associated with the attempt made in the experiments to capture key features of the audit context in a scenario of sufficient simplicity to be experimentally effective.

The main challenge in experiments applying regulatory focus and regulatory fit is in relation to difficulties associated with obtaining a successful manipulation and knowing that it has worked as intended. First, if manipulation applied is not successful, results are invalid. A possible remedy is to carry out manipulation check, e.g., take measures for indicators such as mood shift or immediate reaction. For instance, the number of suspicious items identified in one of the manipulation task in Experiment 2 was counted to check the effectiveness of manipulation (see Section 8.3.1 in Chapter Eight). Second, manipulation applied is momentary and not being carried into the task so that responses are not as expected. Third, previous manipulation applied is carried over to show an impact on responses under current setting. It may also give rise to rebound on judgment due to tiredness that drains participants' cognitive resources, anxiety or adaptation to manipulation. Remedy to this problem is to balance the presentation of manipulation, e.g., using both versions of introducing manipulation A and then B, as well as introducing manipulation B and then A. Four, manipulation applied was successful but manipulated the wrong thing, e.g., manipulation to encourage adoption of different strategies to make judgment which turned out to activate procedural thinking.

It is possible that certain factors not controlled for might have affected the results in the experiments. Firstly, the perceived difficulty of tasks might differ among participants with different level of accounting knowledge. Since the case was designed to be accessible for non-specialist and less experienced practitioners, the experiment did not account for differences in experiences among subjects. It is possible that there is a systematic relation between experience and response to regulatory focus. Audit experience or training may mitigate some of the effects of regulatory focus on cognition and judgment. However, given the fact that regulatory focus is not attended to by the audit community, it is possibly unlikely that professional training helps auditors overcome any bias it may introduce to their work. Therefore, it is important that future research shall experiment on professional subjects.

As the first study to enquire into the implication of regulatory focus and regulatory fit in

audit judgment it has limitations which will need to be further investigated and overcome, though additional experiments and modified methods, if the research potential here is to be fully exploited. There clearly are significant opportunities for future research into the significance of regulatory focus and fit for audit: For instance, Experiment 4 reported insightful findings indicating interesting and complex interactions between regulatory focus and temporal distance in a situation of notable under-performed in a past financial year. Future research might consider the case of notably high-performance in a past financial year. Information about the future, e.g., predictions / estimations of accounting values of future year(s) might also be applied in future studies to examine whether the distinct effect of promotion focus and prevention focus on information processing and judgment would also apply in future dimension of the temporal aspect. In addition, this thesis only looks at audit judgment on individual basis. As auditors work in a team structures, future study can also investigate into the effect of regulatory focus and regulatory fit on group judgment. Thus, future studies can devise more experiments to fully explore some of the findings and insights obtained from experiments in this thesis.

This research employs a task of boundary judgment to indicate a range. This task is new to the literature of regulatory focus, which has not been explicitly examined in prior research. People may think differently in relation to the boundaries of range, which can be expected to be associated with regulatory focus. To indicate the upper boundary of possible range, e.g., expected range of amounts to be collected, is a judgment concerning best possible outcome, which seems more characteristic of promotion focus concern. Whereas, to indicate the lower boundary of possible range is a judgment concerning worst possible outcome, which seems more characteristic of prevention focus concern. Future studies can use more simplified and well-defined settings to explore the possible effect of regulatory focus on boundary judgment.

Regulatory Focus Theory can be applied to account for differences in judgments and help explain why some auditors fall into judgmental fallacies and biases and other don't. For instance, the familiarity bias suggests that it is common for people care more about people they are familiar with rather than those who are more distant. The audit commitment brings auditors in close contact with their clients, which therefore suggests that auditors will be more familiar with their clients than with others members of society they are responsible to. The familiarity bias is also identified as one of the five broad threats to auditors' independence in the Guide to Professional Ethics Statement (GPES). The psychological (social) distance between individuals determines the mental representation of in-groups

membership – ‘us’, and outgroup membership – ‘them’. Promotion focus regulates how individuals approach in-group members, and it motivates favouritism behaviour and emotions towards in-group members; whereas prevention focus regulates how individuals avoid out-group members and the associated emotions and behaviours towards outgroup members (Shah, 2003; Shah, Brazy and Higgins, 2004). Hence, the familiarity bias can be expected to be more associated with promotion focus. Interpersonal contacts over time may cause confusion over whether auditors are in alliance with their clients, possible misrepresentation of in-group membership. As regulatory focus can be either a chronic difference among people or situationally manipulated, prevention focus can be activated to avoid the potential problem of unintentional favouritism toward client among auditors. Future research can investigate into this plausible implication of prevention focus on auditors’ independence in audit judgment concerning issues like going-concern.

Moreover, regulatory focus may help firms in determine pay and remuneration package for auditors. Whereas, people with promotion focus are motivated to seek advancement; people with prevention focus are motivated to seek security. Thus, higher proportion of bonus on top of basic salary will suit promotion focused auditors better, while higher proportion of basic salary in the pay will be a better package for prevention focused auditors. The motivational effect of different pay and remuneration package for auditors may also be an interesting topic to explore in future studies.

The following of this section looks at insights obtained from this thesis and generally discusses the possible link between accountability and regulatory fit, as well as the language of audit and regulatory focus.

11.5.1 Accountability and regulatory fit

The psychology of accountability has been reviewed and discussed in Chapter Four (Section 4.4). Lerner and Tetlock (1999; 2003) have identified several subtypes of accountability based on their different characteristics (e.g., with known or unknown audience’s view; accountable for process or outcome of judgment) and different effects on the cognition of accountability. Prior literature has not concluded with a typical or main effect of accountability. Following the elucidation on the cognitive effects of accountability proposed by Lerner and Tetlock (1999; 2003), it has then been broadly concluded in this thesis that accountability intensifies motivational effects on individual’s judgment and

decision-making. One fundamental component of regulatory fit is the strengthened engagement in one's goal pursuit that intensifies the motivational effect of regulatory focus (Cesario et al., 2008). Therefore, accountability and regulatory fit have similar function of self-regulation intensification in judgment and decision-making. It may be that there are links between accountability and regulatory fit, e.g., accountability may be conceived as a source of regulatory fit. In the following discussion, consideration is given to the possible regulatory fit effects of accountability with known audience views, and of outcome versus process accountability.

Accountability with known audience's view has been found to be associated with coping strategy in judgment to seek approval from the audience (e.g., Tetlock et al., 1989). For instance, to ensure the work performed being approved by the reviewer, the preparer of the working-paper can simply follow the reviewers' view / preference if it is known. This can also be explained from regulatory fit perspective. Audience's view may be considered as source of 'proper means'. Thus, adopting coping strategy to follow audience's view not only ensures the justifiability of the judgment made, it also creates a feeling of rightness about the coping behavior as a result of fit from 'proper means' applied.

Prior research suggested that outcome accountability – accountable for the outcome of judgment, triggers confirmatory thought attempting to rationalize the judgment made; whereas process accountability – accountable for the process of judgment, triggers exploratory thought to consider all possible alternatives (Lerner and Tetlock, 2003). According to Higgins (2002), an individual's regulatory focus determines the psychological value of the outcome of judgment[39]. When being held accountable for the outcome, individuals are directed toward the valuation of outcomes of judgment that can be expected to strengthen the effect of regulatory focus on outcome valence. In addition, regulatory fit creates decision value from means that a person applied in the process of reaching a decision, and the person's. Hence, when being held accountable for the process, individuals' regulatory fit and misfit from strategic means applied in the process of making judgment is reinforced.

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[39] Consider a situation that a person visits department store to purchase a television under special discount. Additional objective value (e.g., reward points in store card) obtained on top of the non-loss condition (e.g., buy at the discounted price) does not create additional subjective value, as both are considered as equally favourable in prevention focus; whereas, non-gain condition (e.g., discount offer expired) and loss (e.g., this product already sold out) are equally unfavourable in promotion focus regardless of the difference in their objective values.

Therefore, a plausible proposition is made that the setting of accountability may create specific source of regulatory fit or direct individuals towards different sources of regulatory fit in audit environment.

11.5.2 Rule-based versus principle-based approach and regulatory focus

The debate over rule-based versus principle-based approach of accounting standards has been driven the focus of the professional standards board and guide recent development of the standards. The IASB, for instance, has been claiming to adopt a principle-based approach and working on the International Accounting Standards over the past two decades. However, principle-based approach should allow auditors to 'draw upon accounting principles and rules' as part of the argument to justify the audit opinion (Smieliauskas et al. 2008, p230). Based on this criteria, researchers criticise that current audit better serves the rule-based approach rather than principle-based one.

'One can rarely, if ever, be 100 per cent certain that the stated reasons are true' (Smieliauskas et al. 2008, p230). A highly reputed defence lawyer cannot provide 100% guarantee that his best defence argument can win the case for his client as the prosecutor may challenge any details and claims in the argument. But one can always ensure that rules have been applied and the standard procedures have been followed. A mechanic can not guarantee that an aircraft will be free from mechanical problems when flying 30,000 feet high, but he can surely assured the pilot that all necessary checks have been done following the manual without spotting any threat. Hence, auditors with a prevention focus, driven by security needs, would prefer to follow a rule-based approach in order to get assurance and protection from mistakes. Whereas auditors with a promotion focus would prefer a principle-based approach that gives more space for professional judgment that satisfy their nurturance needs.

An experiment had been designed during the period of this doctoral research, which was aimed to contribute to the debate concerning approach adopted in leasing accounting. A purpose of the designed experiment was to test that association between individuals' regulatory focus and their preference of rule-based or principle-based approach in leasing accounting. The motivation of this experimental design was initiated from the earlier version of Exposure Draft of 'Leases' published in 2010. A probability threshold approach

was proposed in the 2010 draft requiring that "optional periods are included in the lease term if the probability that the lessee will exercise its right to use the leased item in the optional period is *'more likely than not to occur'*". That is, the lease term to be recognized should be the longest term with over 50% probability to occur. An illustration example was provided in the 2010 draft (see Appendix 6, page 299). The clearly defined threshold of this probability threshold approach indicated that it is a rule-based approach. Comments received from respondents seemed to support the use of a 'reasonably certain' probability threshold, under which an option would be recognized only where it is "reasonably certain" to be exercised, a principle-based approach.

The experiment was developed upon a case created based on an airline and travel business. The experimental materials can be found in Appendix 6 (on pp. 297-303). However, due to the demand of experienced auditors and practitioners to be able to deal with complex leasing accounting issues, the experiment had not been executed after piloting on few subjects[40].

Another element in the design of the leasing experiment is an answer panel (see Appendix 6 on page 326) developed to study the process of making judgment that requires consideration of multiple issues[41]. Regulatory focus fundamentally affects many aspects in decision-making, e.g., selective attention paid to different information (as discussed earlier in Section 11.2.1.1, pp. 269-271), strategies adopted in information search, generation of alternatives (Crowe and Higgins, 1997), perception of persuasiveness of information (see Section 11.2.2 from page 272), etc. Hence, difference in judgment made among people can be considered as a product of various effects of regulatory focus. It is therefore difficult to test the implications of regulatory focus on audit judgment under complexity of multiple considerations involved in the judgmental process. This idea and design of using answer panel to examine effects of regulatory focus at various stages in the process of making judgment can be applied in future studies on various audit judgments.

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[40] Subjects invited to pilot the experimental material include Accounting PhD students, qualified accountants in medium sized company with over 5 years experience, senior auditors with approx. 3 years experience.

[41] This answer panel had been developed to require a breakdown of judgment into several steps. The first step, as instructed in the panel, is to include relevant factors to the judgment, and then to indicate whether included factors are positive or negative indicator. The next step is to pick out important factors for further consideration, before applying different approach to make the judgment – either to narrowly focus on decisive factors or to weight importance of important factors.

11.5.3 The language of audit and regulatory focus

The objective of audit is stated in U.S standards as to ensure absence of material misstatement in financial statements, which represent a prevention focused goal concerning avoidance of errors; while the objective stated in U.K. standards is to offer a true and fair view – to express in the auditor's opinion whether the company's financial statements offer a true and fair view of its actual financial positions, which is a promotion focused goal concerning approaching of an ideal state. There seems to be a clear regulatory focus distinction of the audit objectives in U.K. and U.S standards.

The standards are constructed to reflect and to advocate the objectives of audit. Therefore, it can be expected that the two standards convey different messages to reflect either a promotion goal (true and fair view) or a prevention goal (free from materials misstatement). Message framing techniques applied in persuasion fit studies suggested different language used to structure persuasive messages to fit with either promotion focus or prevention focus (see Section 1.4.3.1 about message matching in Chapter One). Promotion focus framed message consists of content information that consistently focuses on absence and presence of achievement and ideal states (promotion focus concerns). Whereas prevention focus framed message consists of content information that consistently focuses on concerns about absence and presence of obligations and ought states (prevention focus concerns). This section of the discussion looks at language used in the professional standards to see whether there is any specific pattern of regulatory focus (framing) in the UK and US auditing standards.

As stated in U.S.'s Statement on Auditing Standards (SAS) No. 82, *Consideration of Fraud in a Financial Statement Audit*, further explains this audit responsibility to detect fraud as:

> "An auditor cannot obtain absolute assurance that material misstatements in the financial statements will be detected. Because of (*a*) the concealment aspects of fraudulent activity, including the fact that fraud often involves collusion or falsified documentation, and (*b*) the need to apply professional judgment in the identification and evaluation of fraud risk factors and other conditions, even a properly planned and performed audit may not detect a material misstatement resulting from fraud. Accordingly, because of the above characteristics of fraud and the nature of audit evidence … the auditor is able to obtain only reasonable assurance that material misstatements in the financial statements, including misstatements resulting from fraud, are detected."

Respectively in the U.K. standards, ISA 240 *The auditor's responsibility relating to fraud in an audit of financial statements*, Paragraph 5, the responsibilites of the auditor for the prevention and detection of fraud is stated as follow:

> "… Owing to the inherent limitations of an audit, there is an unavoidable risk that some material misstatements of the financial statements may not be detected, even though the audit is properly planned and performed in accordance with the ISAs (UK and Ireland)."

And in the sequential paragraph 6, it further discusses the "inherent limitations" as follow:

> "… the potential effects of inherent limitations are particularly significant in the case of misstatement resulting from fraud." The risk of not detecting a material misstatement resulting from fraud is higher than the risk of not detecting one resulting from error. This is because fraud may involve sophisticated and carefully organized schemes designed to conceal it, such as forgery, deliberate failure to record transactions, or intentional misrepresentations being made to the auditor. Such attempts at concealment may be even more difficult to detect when accompanied by collusion. Collusion may cause the auditor to believe that audit evidence is persuasive when it is, in fact, false. The auditor's ability to detect a fraud depends on factors such as the skillfulness of the perpetrator, the frequency and extent of manipulation, the degree of collusion involved, the relative size of individual amounts manipulated, and the seniority of those individuals involved. While the auditor may be able to identify potential opportunities for fraud to be perpetrated, it is difficult for the auditor to determine whether misstatements in judgment areas such as accounting estimates are caused by fraud or error."

Risk relating to detection of fraud in financial statement is stated in the UK standards as "an unavoidable risk" that some fraud may not be detected, and in the U.S. standards phrase it as a limitation that "even a properly planned an performed audit may not detect a material missatement". Although the wordings looks similar between the two, the descriptions in the UK standards emphasize on potential difficulties that may lead to some unsuccess (in detection of fraud). In other words, chances that 'hits' may not be achieved, which concerns about *the absence of success*, representing a promotion focused orientation. Whilst the US standards, by using the words "cannot", "even…may not", and "is able to only", is written in a comparably passive manner that explains circumstances that lead to failure (of proper audit in dection of fraud). The descriptions of the causes of "miss" emphasize on concerns about *the presence of failure*, representing a prevention focus orientation. Similarily, in related sections regarding entity's going concern issues, the U.S. standards continues to emphasis on the absence of responsibility for prediction future

events – dismissal of oughts, whereas the UK standards only states the inabilty to predict future events – dismissal of ideals. Moreover, in the sections regarding objectives of audit, UK standards merely conclude that audit does not relief manangement from their responsibility; whereas US standards highlighted that 'financial statements are manangement's responsibility' (see Table 11.2 below for a summary of comparisons).

Table 11.2 Comparison of the wordings in U.S. and U.K. auditing standards

	U.S. standards	U.K. standards
Financial statement audit	SAS 1 *Codification of Auditing Standards and Procedures; and,* SAS 82 *Consideration of Fraud in Financial Statement Audit*	ISA 240 *The auditor's responsibility relating to fraud in an audit of financial statements*, Paragraph 5 and 6
Going concern	SAS 59, Paragraph 4 'The auditor **is not responsible** for predicting future conditions or events'	ISA 570, Paragraph 10 'The auditor **cannot predict** future events or conditions that may cause an entity to cease to continue as a going concern'
Objectives of audit	SAS 1, AU Section 110, Paragraph 3 'The financial statements are **management's responsibility**. The auditor's responsibility is to express an opinion on the financial statement. Management is **responsible** for adopting sound internal control … The auditor's knowledge of these matters and internal control is limited to that acquired through the audit. Thus … is a**n implicit and integral part of management's responsibility**'.	ISA 200, Paragraph 4 'The financial statements subject to audit are those of the entity, prepared by management of the entity with oversight from those charged with governance… The audit of the financial statement **does not relieve** management or those charged with governance of **their responsibility**'

Based on the comparisons above, it seemed that the U.K. standards show more patterns of promotion focus framing that consistently talks about problems and difficulties associated with ideals, e.g. to predict future events; whereas the U.S. standards show more patterns of prevention focus framing, which mainly talks about allocation of responsibilities. To link with the disucussion on the possible link between prevention focus and preference of rule-based versus promotion focus and principle-based approach in the earlier section (Section 11.5.2), the language used in U.K. standards arguably consititutes principle-based approach better than U.S. standards, which is consistent with promotion focus.

Appendices

Appendix 1. Regulatory Focus Questionnaire (RFQ) and scoring instruction

Event Reaction Questionnaire

This set of questions asks you HOW FREQUENTLY specific events actually occur or have occurred in your life. Please indicate your answer to each question by circling the appropriate number below it.

1. Compared to most people, are you typically unable to get what you want out of life?

1	2	3	4	5
never or seldom		sometimes		very often

2. Growing up, would you ever "cross the line" by doing things that your parents would not tolerate?

1	2	3	4	5
never or seldom		sometimes		very often

3. How often have you accomplished things that got you "psyched" to work even harder?

1	2	3	4	5
never or seldom		sometimes		very often

4. Did you get on your parents' nerves often when you were growing up?

1	2	3	4	5
never or seldom		sometimes		very often

5. How often did you obey rules and regulations that were established by your parents?

1	2	3	4	5
never or seldom		sometimes		very often

6. Growing up, did you ever act in ways that your parents thought were objectionable?

1	2	3	4	5
never or seldom		sometimes		very often

7. Do you often do well at different things that you try?

1	2	3	4	5
never or seldom		sometimes		very often

8. Not being careful enough has gotten me into trouble at times.

1	2	3	4	5
never or seldom		sometimes		very often

9. When it comes to achieving things that are important to me, I find that I don't perform as well as I ideally would like to do.

1	2	3	4	5
never true		sometimes true		very often true

10. I feel like I have made progress toward being successful in my life.

1	2	3	4	5
certainly false				certainly true

11. I have found very few hobbies or activities in my life that capture my interest or motivate me to put effort into them.

1	2	3	4	5
certainly false				certainly true

Scoring instruction:

The scores of both promotion pride and prevention pride are computed using the following equations:

Promotion pride = (6 – response 1) + response 3 + response 7 + (6 – response 9) + response 10 + (6 – response 11).

Prevention pride = (6 – response 2) + (6 – response 4) + response 5 + (6 – response 6) + (6 – response 8).

Appendix 2 Experimental materials of Experiment 1, 2 and 3

Message matching (Experiment 1) – promotion focus with matching messages

Please read the following scenario and make your judgment as required.

Imagine that it is now the **end of September**.

The committee of a student-organized university drama club will meet soon to plan the club's activities for the university year.

The committee needs to make a firm decision, very soon, on whether the club should plan for two or for three productions this year. Bookings, of venues and costumes, need to be made well in advance. Whether two or three productions would be best for the club depends very much on the funds available.

The committee has asked you, as an independent non-member, to review the available information and advise them on this issue, and you have agreed to do so.

Please read the following reasons why you might want to take advantage of this opportunity, and **pick the 2 best / most important reasons**:

	Tick the 2 best / most important reasons
To gain valuable experience and develop your expertise.	
To promote the best interest of the club and its members by giving the right advice.	
To enhance my reputation for taking on and coping with challenging roles.	
For the satisfaction and comes with achievement	

Available information

With the decision on the number of productions to be planned for in mind, the club treasurer has provided you with the following information:

The club's main sources of funds are members' subscriptions, donations from former members and the general public, and revenue from selling tickets for performances of its productions. It has found that ticket receipts never cover the whole costs of its productions and it relies on the subscriptions and donations. The club never carries forward reserves of cash into a new year, but spends any surpluses it might have on an end-of-year party.

Subscriptions

The club gets students to indicate their interest in joining the club, by signing-up early in the autumn semester, but membership rights are given only when the full subscription amount of £20 per annum is received.

The committee reckons that in order to justify a decision for three productions it will need a contribution of £6,000 from subscriptions.

Below is a schedule showing the number of students who have signed-up this year:

	September				Total
	Week 1	Week 2	Week 3	Week 4	
Number of Sign-ups	45	147	161	47	**400**

Of the 400 students who have signed-up to join the club this year, 200 students have submitted their payments.

The following is a schedule showing the monthly pattern of cash receipts for this year and in the two previous years:

Number of subscription cash receipts	September		Oct	Nov	Dec	Jan	Feb	Mar – Aug	Total
	Week 1, 2 & 3	Week 4							
2 Years Ago	101	67	28	32	25	7	0	0	260
Last Year	113	63	34	38	21	9	2	0	280
Current Year	**126**	**74**							**200**

So far subscription payments amounting to £4,000 have been collected and an additional £2,000 collected will meet the required amount. That is equivalent to 100 more subscription payments to meet the 300 mark.

The committee has contacted a random sample of 30 students who have signed-up for the club but not yet paid their subscriptions, asking them to confirm their continuing interest in the club and reminding them of the clubs reliance on subscriptions. The following responses were received within a week of the email being sent out:

	No.
Confirmed and intend to pay before the next club meeting	11
No longer interested in joining / unable to pay subscription	6
Undecided but intending to attend next meeting and decide soon	4
Not yet replied	9
Total	**30**

Based on the results obtained from this exercise it seems that 15 out of the sample of 30 students will pay-up.

The treasurer has suggested the committee that the club can expect £6,000 or more to be generated from membership subscriptions alone this university year.

Required:

Please indicate how likely it is, in your view, that the club will be able to collect £6,000 or more from members' subscriptions this year.

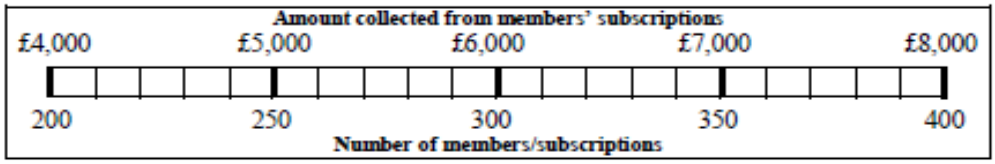
5 **Certainly**	4 **Highly Likely**	3 **Fairly Likely**	2 **Fairly Unlikely**	1 **Highly Unlikely**	0 **Certainly Not**

Please indicate how confident you are in the above judgment:

100% confident	
99% - 99.99%	
95% - 98.99%	
90% - 94.99%	
85% - 89.99%	
80% - 84.99%	
70% - 79.99%	
60% - 69.99%	
50% - 59.99%	
40% - 49.99%	
30% - 39.99%	
20% - 29.99%	
10% - 19.99%	
0% - 9.99%	

Estimate as a percentage the likelihood that £6,000 or more will be collected from subscriptions: ____ %

Please fill-in boxes in the grid below to indicate your assessment of the range of amounts that the club can reasonably expect to collect from subscriptions:

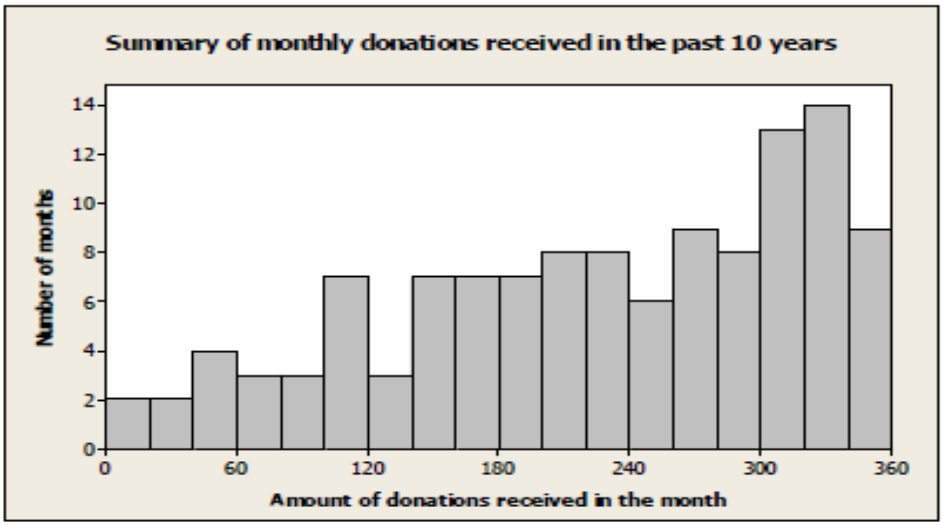


Donations

The club is long established with a good reputation and receives donations from previous club members and occasionally from the general public.

The club's treasurer has prepared a schedule of the amounts received from donations in each month over the past ten years. The schedule is attached as an appendix (on the final page). Analysis shows that there is no seasonality or trend in the amounts of monthly donations received.

Below is a graphical summary of the monthly donation amounts received over the past ten years based on the treasurer's schedule:



Required:

Please indicate in the table below the amount closest to your estimate of how much the club will collect from donations, by ticking in the column on the right.

Monthly amount received in average (£)	Equivalent to annual total amount of donations (£)	Tick the amount according to your estimation
80	960	
90	1,080	
100	1,200	
110	1,320	
120	1,440	
130	1,560	
140	1,680	
150	1,800	
160	1,920	
170	2,040	
180	2,160	
190	2,280	
200	2,400	
210	2,520	
220	2,640	
230	2,760	
240	2,880	
250	3,000	
260	3,120	
270	3,240	
280	3,360	
290	3,480	
300	3,600	
310	3,720	
320	3,840	
330	3,960	
340	4,080	
350	4,200	
360	4,320	

The committee reckons that in order to justify a decision for three productions it would need a contribution of £3,000 or more from donations.

Please indicate how likely it is, in your view, that the club will be able to collect £3,000 or more from donations this year.

5 **Certainly**	4 **Highly Likely**	3 **Fairly Likely**	2 **Fairly Unlikely**	1 **Highly Unlikely**	0 **Certainly Not**

Please indicate how confident you are in the judgment immediately above:

100% confident	
99% - 99.99%	
95% - 98.99%	
90% - 94.99%	
85% - 89.99%	
80% - 84.99%	
70% - 79.99%	
60% - 69.99%	
50% - 59.99%	
40% - 49.99%	
30% - 39.99%	
20% - 29.99%	
10% - 19.99%	
0% - 9.99%	

Estimate as a percentage the likelihood that £3,000 or more will be received from donations this year: | | % |

Advice to the Committee

Recall that the committee has asked you, as an independent non-member, to advise them on whether they should plan for two or for three productions in the coming year.

The committee needs to decide soon because venues and costumes must be booked early and the booking fees are considerable and normally non-refundable.

Given that revenue from selling tickets for performances of the club's productions never covers the full cost, and that there is typically a shortfall of about £3,000 on each production, the committee reckons that it will need a total of £9,000 from subscriptions and donations to support the production of 3 plays.

You have already looked at and assessed the collectability of funds from membership subscription and from donations. Please now indicate how many plays you will recommend the club should plan to produce this year:

2 plays	
3 plays	

Please also indicate how confident you are in this advice:

100% confident	
99% - 99.99%	
95% - 98.99%	
90% - 94.99%	
85% - 89.99%	
80% - 84.99%	
70% - 79.99%	
60% - 69.99%	
50% - 59.99%	
40% - 49.99%	
30% - 39.99%	
20% - 29.99%	
10% - 19.99%	
0% - 9.99%	

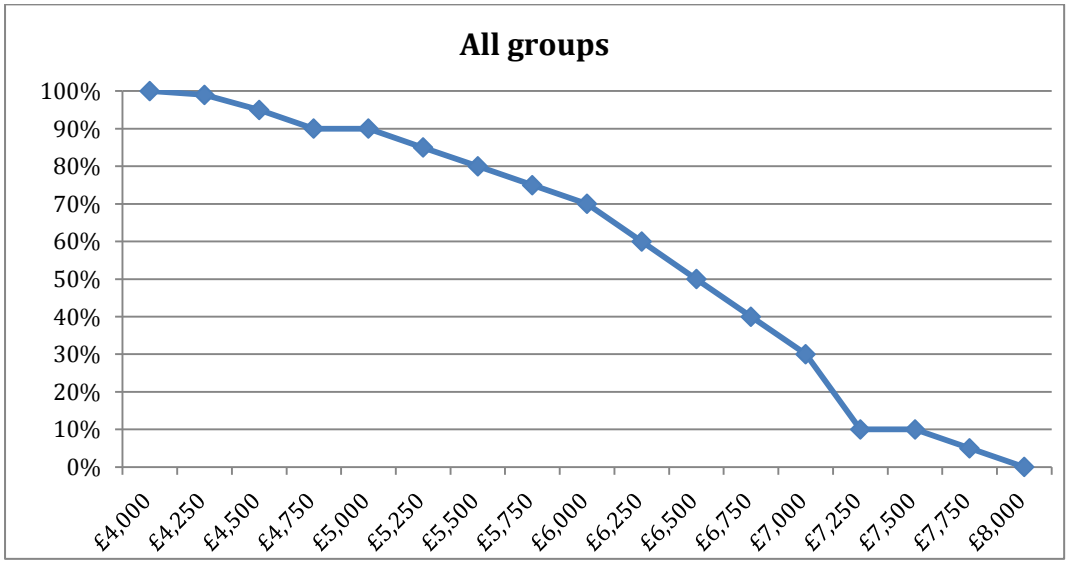
Appendix 3 Likelihood indication in Experiment 3a

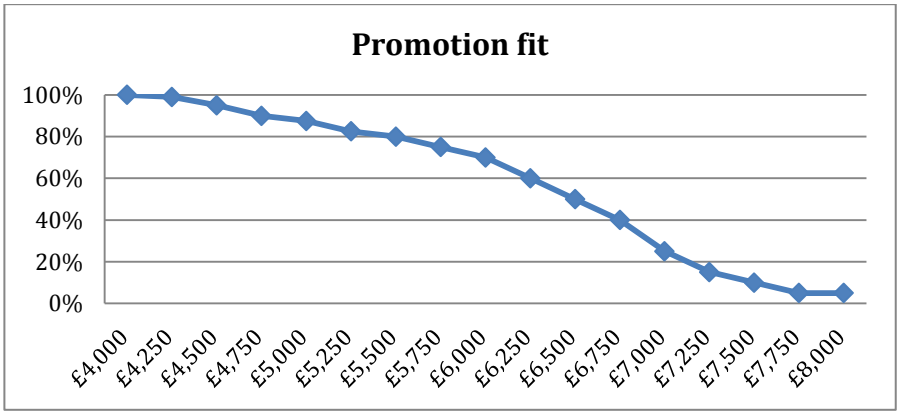
In Experiment 3a (members subscription section), participants were required to perform likelihood assessment on each of the amounts between £4,000 and £8,000 with an interval of £250. The answer panel and instruction given were as follow:

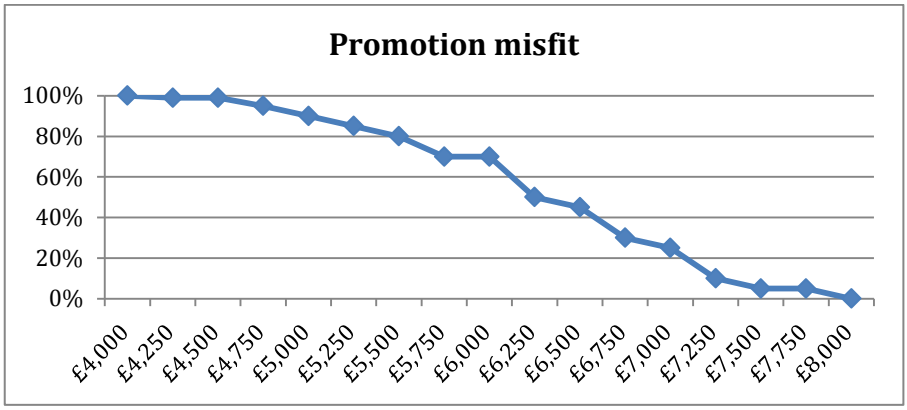
Please indicate by ticking one box in each column below, how confident you are that and an amount equal to or greater than that indicated will be collected from subscriptions in the year.

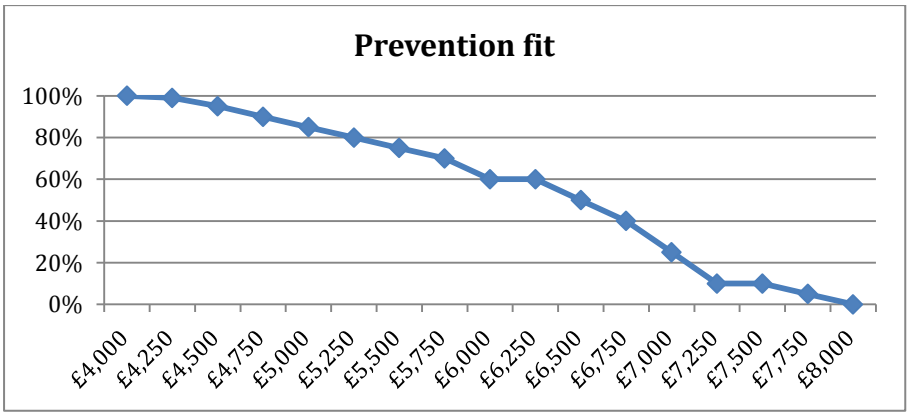
	Amount collected from members' subscriptions in the year (£) equal to or greater than:																
Likelihood	4,000	4,250	4,500	4,750	5,000	5,250	5,500	5,750	**6,000**	6,250	6,500	6,750	7,000	7,250	7,500	7,750	8,000
100% certain																	
99% likely																	
95% likely																	
90% likely																	
85% likely																	
80% likely																	
75% likely																	
70% likely																	
60% likely																	
50% likely																	
40% likely																	
30% likely																	
20% likely																	
10% likely																	
5% likely																	
0% certainly not																	

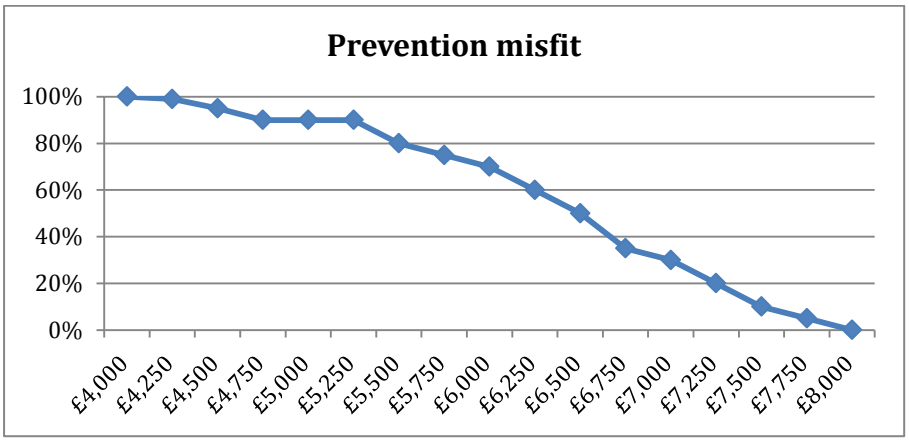
Medians of responses from all of the four treatment groups and each treatment group were shown below:




Promotion fit
100%
80%
60%
40%
20%
0%
£4,000
£4,250
£4,500
£4,750
£5,000
£5,250
£5,500
£5,750
£6,000
£6,250
£6,500
£6,750
£7,000
£7,250
£7,500
£7,750
£8,000


Promotion misfit
100%
80%
60%
40%
20%
0%
£4,000
£4,250
£4,500
£4,750
£5,000
£5,250
£5,500
£5,750
£6,000
£6,250
£6,500
£6,750
£7,000
£7,250
£7,500
£7,750
£8,000


Prevention fit
100%
80%
60%
40%
20%
0%
£4,000
£4,250
£4,500
£4,750
£5,000
£5,250
£5,500
£5,750
£6,000
£6,250
£6,500
£6,750
£7,000
£7,250
£7,500
£7,750
£8,000


Prevention misfit
100%
80%
60%
40%
20%
0%
£4,000
£4,250
£4,500
£4,750
£5,000
£5,250
£5,500
£5,750
£6,000
£6,250
£6,500
£6,750
£7,000
£7,250
£7,500
£7,750
£8,000

Appendix 4 Summary of descriptive results of Experiment 1, 2 and 3

Descriptive results of related dependent measures are summarized below. Responses from each of the four treatment groups – 2 (promotion focus and prevention focus) x 2 (regulatory fit versus misfit induced) are organized in panels and exhibited in the table below.

Table A4 Summary of descriptive results of each treatment groups in estimation judgments

Promotion fit group		**Message matching**			**Integral fit**			**Incidental fit**		
		N	Mean	Std.dev	N	Mean	Std.dev	N	Mean	Std.dev
Subscriptions	Upper bound	15	5740	860.066	27	6148	749.549	31	5819	638.968
	Lower bound		4807	1017.32		5948	739.215		4774	968.493
Donations		15	2344	699.518	26	3163	922.357	34	2968	723.813

Prevention fit group		**Message matching**			**Integral fit**			**Incidental fit**		
		N	Mean	Std.dev	N	Mean	Std.dev	N	Mean	Std.dev
Subscriptions	Upper bound	15	5440	610.386	22	6009	728.932	32	5569	859.646
	Lower bound		4693	724.536		5600	1284.338		4494	940.809
Donations		15	2432	567.340	16	3128	732.796	33	2764	657.599

Promotion misfit group		**Message mismatching**			**Integral misfit**			**Incidental misfit**		
		N	Mean	Std.dev	N	Mean	Std.dev	N	Mean	Std.dev
Subscriptions	Upper bound	14	5600	800	19	5863	884.566	34	5944	639.693
	Lower bound		5000	908.083		5589	980.870		4594	917.817
Donations		14	2966	761.029	19	2617	398.456	28	2751	613.561

Prevention misfit group		**Message mismatching**			**Integral misfit**			**Incidental misfit**		
		N	Mean	Std.dev	N	Mean	Std.dev	N	Mean	Std.dev
Subscriptions	Upper bound	15	5867	990.430	21	5281	696.864	35	5671	655.714
	Lower bound		5093	827.618		4819	782.061		4691	1001.58
Donations		17	2576	780.136	19	3969	1703.439	29	2942	533.408

Appendix 5 Experimental materials of Experiment 4

You are invited to participate in an experiment to examine the association between personality and efficient group work.

Before the experiment, we would like to gather some information about your background followed by a short task to indicate your level of skills.

Part I

Which type of school did you go to before your undergraduate study? (Please circle) Public / Private / Boarding

What was your weakest subject? _____

What grades did you get for your Highers/A-level Maths? _____

How strong you would rate as your mathematical skills? (Please circle) 1 Very Weak 2 3 Moderate 4 5 Very Strong

How many close friends do you have at present? (Please circle) 0 1 2 3 4 5 or more

What is the most important thing to you in your career?

_____

Part II

Please fill in the personality test below.

This set of questions asks you HOW FREQUENTLY specific events actually occur or have occurred in your life. Please indicate your answer to each question by tick in the grid of the appropriate number on the right.						
		never or seldom		sometimes		very often
		1	2	3	4	5
1	Compared to most people, are you typically unable to get what you want out of life?					
2	Growing up, would you ever "cross the line" by doing things that your parents would not tolerate?					
3	How often have you accomplished things that got you "psyched" to work even harder?					
4	Did you get on your parents' nerves often when you were growing up?					
5	How often did you obey rules and regulations that were established by your parents?					
6	Growing up, did you ever act in ways that your parents thought were objectionable?					
7	Do you often do well at different things that you try?					
8	Not being careful enough has gotten me into trouble at times.					
9	When it comes to achieving things that are important to me, I find that I don't perform as well as I ideally would like to do.					
		certainly false				certainly true
		1	2	3	4	5
10	I feel like I have made progress toward being successful in my life.					
11	I have found very few hobbies or activities in my life that capture my interest or motivate me to put effort into them.					

Part III

Required: Read the scenario and make judgment as required.

The following is the sales figures of a small manufacturing firm. The firm has stable relationship with its main suppliers and customers. Therefore, there shall be no reason to expect major changes from recent historical relationships.

The figures of the past five years are shown below (all figures are in 000s):

	On 31/03/2007	On 31/03/2008	On 31/03/2009	On 31/03/2010	On 31/03/2011
Sales	24,265	23,875	22,066	20,740	22,941
Cost of Sales	20,868	19,005	17,741	16,343	17,641
Gross Profit	3,397	4,870	4,325	4,397	5,300
Gross Profit Percentage	14%	20.4%	19.6%	21.2%	23.1%

Required: Please indicate a range of possible values for the gross profit percentage for this accounting year ended on 31/03/2012. For value beyond this range, you feel that an investigation should be carried out to explain the fluctuation for this accounting year.

Lower bound of range (i.e., no lower than) _____

Upper bound of range (i.e., no higher than) _____

Depending on individuals' lower bound responses, they were presented with a different 'average response'. The two variations are as shown below.

Those people we have already recruited and fit into one of our groups seem to have a high consensus on a range with lower bound at 19% and upper bound at 23.5%.

Do you want to modify your judgment before submitting your response? **Yes / No**

If Yes, please write your final judgment below:

Lower bound _____ Higher bound _____

Those people we have already recruited and fit into one of our groups seem to have a high consensus on a range with lower bound at 14% and upper bound at 23.5%.

Do you want to modify your judgment before submitting your response? **Yes / No**

If Yes, please write your final judgment below:

Lower bound _____ Higher bound _____

Appendix 6 Airline case

Title: Accounting judgement and the new leasing accounting proposals

Principal Researcher: Minmin Du

Research Supervisors: Prof John McKernan, Prof Paddy O'Donnell

You are being invited to take part in a research study concerning the proposed new approach to accounting for leases. This study is being conducted as a part of a PhD project by Minmin Du who is a student in Accounting and Finance, at the University of Glasgow.

The project has been reviewed from a research ethics perspective and approved by the College of Social Sciences Research Ethics Committee at the University of Glasgow.

There are no known risks if you decide to participate in this research study. Responses will be anonymized at the first possible opportunity and data will be held with all respect to confidentiality. Your completion and return of the research instrument will be taken as signifying your assent to the data you provide being used, in an entirely anonymous way, for the purposes of this research project. No names or participant identifiers of any sort will be used in any outputs arising from this project.

This research aims to make contribution to the continuing debate concerning lease accounting.

The research instrument has three main parts:

I Briefly outlines the new approach to accounting for leases, focusing especially on the treatment of term options, and seeks your views on it.

II Asks you consider a case and make professional judgments concerning the determination of the lease term.

III Seeks some basic information about you as a participant in the research and asks you to complete a well established research instrument designed to give a measure of your orientation towards self-regulation.

The research instruments will take about 30-45 minutes to complete. Your participation may be of little direct benefit to yourself, but it will help the development of knowledge and help shape a potentially important contribution to an important current debate with real significance for accounting practice.

Section I

The proposed treatment of options to extend a lease

The boards considered a number of approaches to the issue of accounting for term options in their early Discussion Paper (March 2009) and tentatively decided, in the Exposure Draft (August 2010), on a **probability threshold approach** requiring that *"optional periods are included in the lease term if the probability that the lessee will exercise its right to use the leased item in the optional period is* ***'more likely than not to occur'****"*.

Below is an illustrative example of this newly proposed approach:

Assume that an entity has a lease with a primary period of 10-years and an option to renew every 5-year after the initial period.

1) After careful study of the situation the following probabilities of the full life of the lease (including primary and renewal periods) have been determined:
   (a) 20 per cent probability of 10-year term
   (b) 50 per cent probability of 15-year term
   (c) 30 per cent probability of 20-year term

2) The lease term will be at least 10 years.
   There is an 80 per cent chance that the term will be 15 years or longer, and a 30 per cent chance that the term will be 20 years.

Where a lease agreement includes term options, e.g., an option to extend the lease, the new proposals will require that the lease term to be recognized, should be the longest term that is "more likely than not" to occur. For the example above,

3) 15 years is the longest possible term that is more likely than not to occur, with a probability of 80%. Therefore the lease term, that ought to be included in the capitalization of the lease, is 15 years.

Comments received from some respondents to the Exposure Draft seem to support the use of a **'reasonably certain'** probability threshold, under which an option would be recognized only where it is "reasonably certain" to be exercised.

Which probability threshold would you prefer to use in practice? (Please tick to indicate)

Reasonably certain lease term	☐	Longest term **more likely than not to occur**	☐

Section I (continued)

Required:

For the two leases below, indicate the lease term as determined using the probability thresholds of 'reasonably certain' and 'more likely than not to occur':

Lease 1:

There is
a 95% probability that the lease term will be 4 years or longer;
an 85% probability that the lease term will be 6 years or longer; and,
a 70% probability that the lease term will be 8 years or longer.

Reasonably Certain lease term	Longest term **more Likely than not to occur**
= years	= years

Lease 2:

There is
a 90% probability that the lease term will be 4 years or longer;
a 75% probability that the lease term will be 6 years or longer; and,
a 55% probability that the lease term will be 8 years or longer.

Reasonably Certain lease term	Longest term **more Likely than not to occur**
= years	= years

Section II

Factors affecting lease term

The financial director of ABC is seeking your advice regarding the newly proposed leasing standard. Her concerns center on the possible impact of the new model on the company's leased aircraft. She is aware that whether or not a lessee is likely to exercise an option to, for example, extend or terminate a lease can depend on many factors in addition to the exercise price of the option. Her difficulty is in thinking about how these factors might apply in the case of her own company – ABC plc.

The Exposure Draft discusses factors that might affect the lease term are discussed under four categories:

Category	Example Factors
1. Contractual factors	Level of rentals in any secondary period (bargain, discounted, market or fixed rate).
	The existence and amount of any termination penalties.
2. Non-contractual financial factors	The existence of significant leasehold improvements that would be lost if the lease were terminated or not extended.
	Costs associated with sourcing alternative items.
3. Business factors	Nature of the asset (specialized vs. non-specialized, willingness to allow a competitor to use the leased item).
	Industry practice.
4. Lessee specific factors	Lessee intentions (stable relationship with lessor, flexible sourcing).
	Past practice.

Please read the case of ABC Company and make judgments as required:

ABC Company initially started its business as a travel agency. During the last decade ABC has successfully expanded its business and market share. It has become increasingly common for travel agencies to have their own flight service, and in line with this trend, ABC established its own airline service, ABC Airways, 5 years ago. By operating its own flight service, ABC has managed to cut the total cost of its products (e.g., holiday packages) and offer travelers more flexible and convenient flight schedules, whilst supplementing its profits by selling spare seats to flight-only customers.

The ABC airline business now serves many key holiday resorts worldwide and has won a significant share of the market. The airline carried approximately 5 million, mainly tourist, passengers during 2011. The airline operates worldwide charter flights not only for its own tours but also for other tour operators.

All aircraft currently in service of ABC Airways are leased from a major commercial airline company, with a strong reputation in the industry. ABC has a history of good relationship with the lessor airline and the rental rates allowed to ABC are amongst the best offered by the lessor.

The lessor used to provide crews. Recently, however, ABC Airways set up its own crew training facilities and has now started to employ its own flying teams.

As of May 2012, the ABC Airways fleet consists of 26 leased aircraft after replacing the old Airbus A320s with Boeing 757s. In addition the company has recently announced that it has committed itself to take delivery of 7 new Boeing 787 Dreamliner aircraft (coming into service in 2013). ABC will be one of the first airlines to fly the Boeing 787 Dreamliner.

Having an appraised current market value, as in May 2012, of £157,500,000, the 11 newly leased Boeing 757 aircraft have average age of 4 years and they are expected to have total service life of approximately 16 years. The aircraft were leased on the following terms:

Boeing 757-300

ABC Co. makes monthly lease payments of £3,300,000 on the first day of each calendar month.

The initial non-cancellable lease period is two years.

At the end of the initial lease period, ABC Company has a rolling option to renew the lease for a further 2 years at the lower of the current fixed rental rate and the market rental rate. ABC then has the same option at the end of each subsequent 2-year period.

If, after the initial 2-year non-cancellable period, ABC opts to renew this lease, early termination of the lease before expiry of the renewal period will be permitted, but at the cost of a penalty that is 10% of the total remaining lease payments.

Routine maintenance of the aircrafts is to be carried out by the lessor.

The lessee (ABC Co.) will be liable for any damages to the aircraft and responsible for insuring the aircraft.

All of ABC's aircraft are painted in its corporate colours and display its logo. The company has made significant interior improvements to the leased aircraft to promote its own brand of flight service, including catering. For instance, the Boeing 757s are equipped to serve long-haul flights, and have two classes of cabin. The Economy Class has a 33" standard seat pitch with a personal 7" TV. Passengers in the Premium Cabin at the front of the aircraft can benefit from the facilities including a 37" seat pitch, wider leather seats, and a 9" TV. These improvements have an expected life of between 8 and 10 years.

The Airbus A320 aircraft now being retired by ABC Company have an average age of 10.6 years and had been in-service with ABC Airway for 5 years. They were leased under a short-term operating lease with a starting lease term of 2 years and option to renew at the end of every 6-month after the starting term. Under the lease agreement, the lessor also provided crews, and kept responsibility for maintenance and insurance of the aircraft.

Required:

1. Please work through the following tasks and indicate your answers in the panel provided (on the next page):

a. Please include, in column 1.1, additional factors (if any) to be considered when determining the lease term.

b. Some factors may tend to have a negative impact on the lease term, i.e, factors that increase the likelihood that the lessee will not extend, or may

even terminate, the lease. Other factors may have a positive impact, i.e., factors that increase the probability that the lease will be extended.

Please indicate, in column 1.2, for each factor whether it represents a positive or negative impact on the probability that the lease will be extended.

c. Please indicate with a tick in column 1.3 those factors that you reckon would be important in the determination of the lease term in this case.

d. You may consider some, few, factors to be decisive in determination of the lease term in this case; Alternatively, you may consider that weight should be given to various factors in making a judgment / determination of the lease term in this case. Please indicate your judgment, in column 1.4, by **either**

   a. ticking the decisive factor(s), **or**

   b. giving weights to factors that matter using a scale from *1 to 5* (least to most weight).

Panel:

Please indicate your answers for required task 1 in Section II in the panel below.

Category	**1.1** Please include factors that may affect the term of the two leases	**1.2** Positive or negative indicator	**1.3** **Tick important** factors	**1.4** **Either** tick the decisive factors, **or,** weight the importance
Contractual factors	Level of rentals in any secondary period (bargain, discounted, market or fixed rate).	Positive / Negative		
	The existence and amount of any termination penalties.	Positive / Negative		
		Positive / Negative		
		Positive / Negative		
Non-contractual financial factors	The existence of significant leasehold improvements that would be lost if the lease were terminated or not extended.	Positive / Negative		
	Costs associated with sourcing alternative items.	Positive / Negative		
		Positive / Negative		
		Positive / Negative		
Business factors	Nature of the asset (specialized vs. non-specialized, willingness to allow a competitor to use the leased item).	Positive / Negative		
	Industry practice.	Positive / Negative		
		Positive / Negative		
		Positive / Negative		
Lessee specific factors	Lessee intentions (stable relationship with lessor, flexible sourcing).	Positive / Negative		
	Past practice.	Positive / Negative		
		Positive / Negative		
		Positive / Negative		

2. Please apply the ***'longest possible term more likely than not to occur'*** threshold to determine the lease term for Boeing 787s lease:

5 years	**8** years	longer than 8 years	
%	%	%	100% (total)

Determined lease term for Boeing 787s lease using the ***'longest possible term more likely than not to occur'*** threshold: _____ years.

3. You may feel the information provided in the case is not sufficient for your consideration. What other information (if any) might help your judgment? (please list below)

- _____
- _____
- _____
- _____
- _____
- _____

4. After reflection on the proposed probability threshold approach, which of the two debated thresholds would you recommend to the joint-project group for the new lease standards?

I would like to recommend (please tick in the box to indicate)

Reasonably certain lease term		Longest term **more likely than not to occur**	

Section III Some Information About Yourself

It is very important to this research that participants can complete this final section about individual differences and personal attributes.

1. Name: _____
2. Gender: Male / Female
3. The following questions provide a brief indication of your personal attributes.

This set of questions asks you HOW FREQUENTLY specific events actually occur or have occurred in your life. Please indicate your answer to each question by tick in the grid of the appropriate number on the right.

		never or seldom		sometimes		very often
		1	2	3	4	5
1	Compared to most people, are you typically unable to get what you want out of life?					
2	Growing up, would you ever "cross the line" by doing things that your parents would not tolerate?					
3	How often have you accomplished things that got you "psyched" to work even harder?					
4	Did you get on your parents' nerves often when you were growing up?					
5	How often did you obey rules and regulations that were established by your parents?					
6	Growing up, did you ever act in ways that your parents thought were objectionable?					
7	Do you often do well at different things that you try?					
8	Not being careful enough has gotten me into trouble at times.					
9	When it comes to achieving things that are important to me, I find that I don't perform as well as I ideally would like to do.					
		certainly false				certainly true
		1	2	3	4	5
10	I feel like I have made progress toward being successful in my life.					
11	I have found very few hobbies or activities in my life that capture my interest or motivate me to put effort into them.					

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